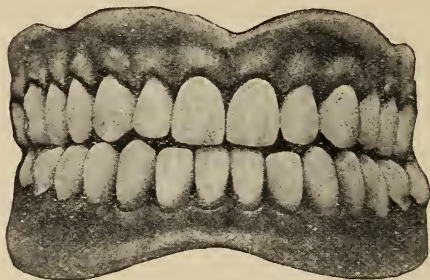




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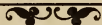
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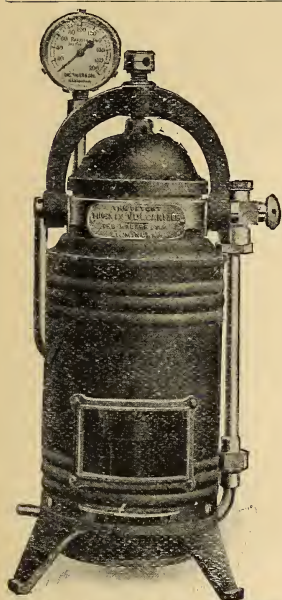
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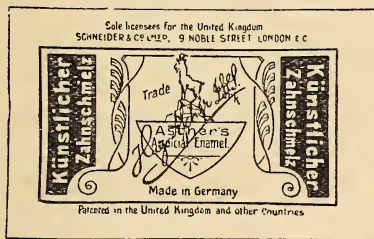
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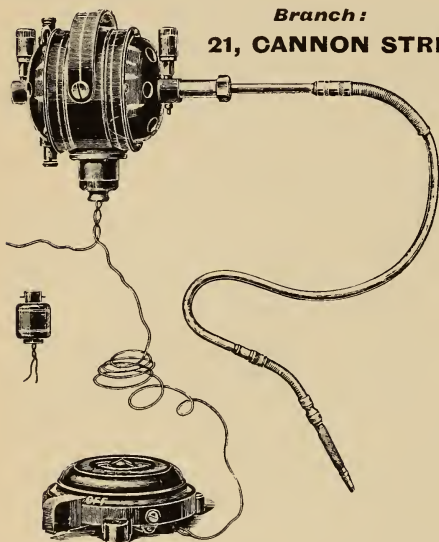
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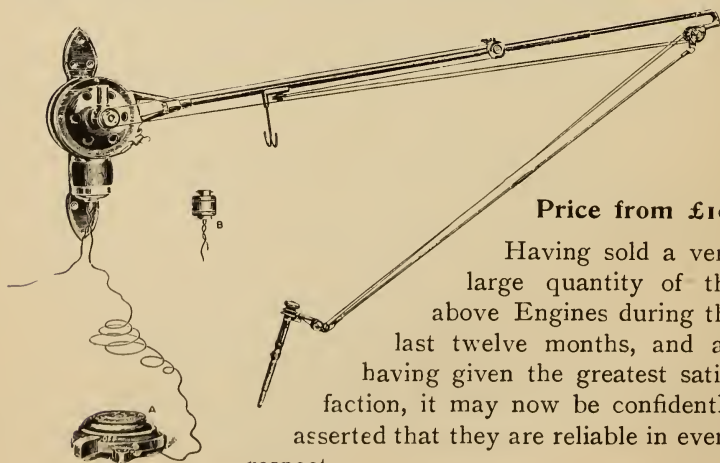


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FOURTH YEAR



OF ISSUE

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# ABBREVIATIONS

## USED IN REFERENCE TO PERIODICAL LITERATURE

<i>A. D.</i>	-	-	-	<i>American Dentist, The.</i>
<i>A. D. J.</i>	-	-	-	<i>American Dental Journal, The.</i>
<i>A. Q. C.</i>	-	-	-	<i>Ash's Quarterly Circular.</i>
<i>Aust. J. D.</i>	-	-	-	<i>Australian Journal of Dentistry, The.</i>
<i>B. D. J.</i>	-	-	-	<i>British Dental Journal, The (lately the Journal of the British Dental Association).</i>
<i>D. Brief</i>	-	-	-	<i>Dental Brief, The.</i>
<i>D. Clip.</i>	-	-	-	<i>Dental Clippings.</i>
<i>D. Cos.</i>	-	-	-	<i>Dental Cosmos, The.</i>
<i>D. Era</i>	-	-	-	<i>Dental Era, The.</i>
<i>D. Hints</i>	-	-	-	<i>Dental Hints.</i>
<i>D. O. and L.</i>	-	-	-	<i>Dental Office and Laboratory, The.</i>
<i>D. Rec.</i>	-	-	-	<i>Dental Record, The.</i>
<i>D. Reg.</i>	-	-	-	<i>Dental Register, The.</i>
<i>D. Rev.</i>	-	-	-	<i>Dental Review, The.</i>
<i>D. Summ.</i>	-	-	-	<i>Dental Summary, The.</i>
<i>D. Surg.</i>	-	-	-	<i>Dental Surgeon, The.</i>
<i>D. W.</i>	-	-	-	<i>Dental World, The.</i>
<i>Dom. D. J.</i>	-	-	-	<i>Dominion Dental Journal, The.</i>
<i>Ind. D. J.</i>	-	-	-	<i>Indian Dental Journal, The.</i>
<i>Int. D. J.</i>	-	-	-	<i>International Dental Journal, The.</i>
<i>It. of Int.</i>	-	-	-	<i>Items of Interest.</i>
<i>Pac. D. J.</i>	-	-	-	<i>Pacific Dental Journal, The.</i>
<i>Penn. D. J.</i>	-	-	-	<i>Pennsylvania Dental Journal, The.</i>
<i>Stom.</i>	-	-	-	<i>Stomatologist, The.</i>
<i>Tex. D. J.</i>	-	-	-	<i>Texas Dental Journal, The.</i>
<i>Trans. N. Y. O. S.</i>	-	-	-	<i>Transactions of the New York Odontological Society, The.</i>
<i>Trans. N. D. A.</i>	-	-	-	<i>Transactions of the National Dental Association, The.</i>
<i>Trans. Odont. S.</i>	-	-	-	<i>Transactions of the Odontological Society of Great Britain, The.</i>
<i>Trans. Odont. Chi.</i>	-	-	-	<i>Transactions of the Odonto-Chirurgical Society of Scotland, The.</i>
<i>U. S. P.</i>	-	-	-	<i>United States Pharmacopœia.</i>
<i>W. D. J.</i>	-	-	-	<i>Western Dental Journal, The.</i>

## PREFACE TO THE FOURTH EDITION

THE methods of revision adopted last year, as defined in the extracts from the Preface to the Third Edition, have so abundantly justified the continuation of the DENTAL ANNUAL AND DIRECTORY, that respecting the present issue we need only explain that some of the more important original monographs on scientific and practical subjects are retained in revised and condensed form, incorporated with the latest information; or where possibly any previous brevity suggested obscurity, extended in an attempt to present readable accounts of recent developments. While abridging as much as possible formal details, the occasional repetition of which is difficult to avoid, fuller details are included of all new educational regulations at home and in the Colonies, recent professional organizations, proceedings of the General Medical Council, and particularly such accomplished facts as may bear upon the important legislation proposed this year.

In adding to the many entries briefly referring to remedies or materials of recent introduction, opportunity has been taken of the late important revision of the United States Pharmacopœia to mention novelties or modifications affecting dental therapeutics.

The specially compiled accounts of Schools, Hospitals, Societies, and the Diary of their meetings, together with the extended lists of various kinds, it is hoped will be found more complete.

Exceptional care has been taken by the publishers to insure as far as possible the accuracy of the Directory of



xviii PREFACE TO THE FOURTH EDITION

Dental Practitioners, which is still the only one issued on topographical lines. To this end, and supplementing their facilities as proprietors of the *Dental Surgeon*, a house-to-house canvass has been undertaken over a large portion of those areas where it is found that the usual and official sources of information are most frequently misleading.

For the able organization and accomplishment of this arduous task, they acknowledge their indebtedness to Mr. William Prince, of Accrington.

They again solicit the help and co-operation of subscribers and readers in their efforts to establish for the book a position among the indispensable yearly works of reference.

EXTRACTS FROM THE PREFACES TO THE  
FIRST, SECOND, AND THIRD EDITIONS,  
1903, 1904, 1905

THE purpose and scope of this first issue of THE DENTAL ANNUAL being indicated by the title-page and its sub-headings, the method of arrangement adopted is obvious on inspection of its contents.

An alphabetical classification of entries and headings, to serve as its own index, involves a certain number of cross-entries.

It may also be pointed out that THE DENTAL ANNUAL is not a retrospective bibliography of literature, but concerned only with affording a guide to the new and original work of the past year. Also the initial attempt has been limited to the English language, and such foreign matter as can be consulted in translations or abstracts in English.

The most noteworthy new feature of the second edition—one which justified an addition to its title—is the Dental Directory of all Registered Practitioners, arranged topographically under the towns of the United Kingdom alphabetically classified. No other such list is known to be published, and the want of it, frequently voiced in the meetings and periodical literature of the profession, and again quite recently by a formal resolution at the Representative Board of the British Dental Association, is now met by a compilation intended to bear the same relation to the official Dentists' Register as the topographical part of the well-known Medical Directory bears to the official Medical Register.

## FROM THE PREFACE TO THE THIRD EDITION

IN deference to the expressed wishes of correspondents, many entries of bibliographical references to literary work of the year have given way to longer quotation or abstracts as reading matter ; and notwithstanding the omission of systematic titles, authors' names, biographies, lists of books or monographs, and cross references, which were a feature of previous years, the fuller treatment of subjects included, apart from the important sections of the Directory and Diary, has required increased space to no less than 434 pages.

An extended discussion of the important question of Anæsthesia, and a greater number of notes upon the newer remedies introduced into dental *Materia Medica*, may, it is hoped, enhance the reference value of the enlargement.

Those previous monographs retained have been revised to date, supplemented by others ; special acknowledgments being due (among others) to Messrs. Carter Braine, F.R.C.S., etc.; G. W. Bampfylde Daniell, M.R.C.S., L.R.C.P.; Vernon Knowles, L.D.S.; Dr. Hewitt, Dr. T. D. Luke, and others, for careful corrections of their contributions ; while we are favoured by special original notes from Dr. McCardie, Mr. R. M. Hatch, L.D.S., and Mr. A. F. Baudry-Mills, L.D.S., Mr. H. Bellamy Gardner, M.R.C.S., L.R.C.P., having kindly re-written his article of last year. Of other original monographs, as special for this edition, may be mentioned : ' Army Dentistry in 1904,' by a very high authority of great experience ; ' The Position of Dentistry in Australia,' by Mr. George Thompson, L.D.S., the first Secretary of the

Dental Board of Victoria; and the short articles on 'Alloys,' 'Aluminium,' 'Amalgam,' 'American Dental Colleges,' 'Arsenic,' 'Crowns,' 'Education,' 'Employers' Liability,' 'Fees,' 'Identification,' 'Inlays,' 'Mouth-washes,' 'Neuralgia,' 'Obtundents,' 'Essential Oils,' 'Orthodontia,' 'Pyorrhœa,' 'Saliva,' 'Soap,' and the notes on new remedies and materials by Mr. Walter Coffin, F.L.S., F.C.S., M.Phys.S., F.R.M.S., the Editor of the *British Dental Journal*. We are also indebted to Mr. H. James Morris, L.D.S., for personal impressions of the International Medical Congress.

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LIBRARIES.	SCHOOL HYGIENE : DENTISTS' SOCIETY.
LIGATURES.	SOAP.
LIGHT.	SOCIETIES. <i>See also</i> Diary sec- tion.
LYMPH GLANDS.	SOLDERING, ELECTRIC.
MALOCCLUSION.	STERILIZATION. <i>See also</i> Asep- sis.
MANUAL TRAINING.	STYPTICS.
MANUFACTURERS, DEALERS, AND DEPOTS.	SWAGING.
MATRIX.	TOOTH-POWDERS.
MOUTH-WASHES.	TROPICS.
NAVY AND ARMY.	UNIVERSITY DEGREES. <i>See</i> Degrees, and Education, etc.
NECROSIS.	VACCINE TREATMENT.
NEURALGIA.	VULCANITE.
NEURASTHENIA.	WAR OFFICE.
NEW BOOKS AND EDITIONS.	WOOL, RADIO-ACTIVE.
NOMENCLATURE.	WORKMAN'S COMPENSATION. <i>See</i> Employer's Liability.
OBITUARY.	X RAYS.
OBTUNDENTS.	ZINC.
ORAL DISEASES, HYGIENE, SEP- SIS, etc.	

The selected list of contents headings are only a small proportion of the many separate entries, numbering many hundreds, relating to newly-introduced remedies, materials and methods, referring to special researches, institutions and individuals, and conveying a variety of useful information which need not be particularized. Being arranged alphabetically, with cross references, no further index or mention of page number is necessary.

# ROBBINS CROWNS.

Registered No. 403651.



## Anatomically Accurate.

FROM the fact that a porcelain crown is most frequently used alone, and in close proximity to its neighbour, it is essential that it should combine immense strength with qualities that enable it to be cut, shaped, and polished, so as to harmonize with the adjacent teeth.

The Robbins Crown has these advantages, and is unquestionably the most suitable for the artistic dentist. Its value has already been widely recognised, so much so that it may be said to have taken its place amongst the *necessities* of the profession.

In producing these crowns, natural teeth have been carefully studied, and the variety we are introducing, we feel, will meet an urgent and hitherto unsatisfied need.

**Write for Illustrated Pamphlet** showing the patterns we are making at present.

---

PRICES	{ Centrals, Laterals, and Canines... ..	2/2 each.
	{ Single-Pin Upper and Lower Bicuspsids ... ..	2/2 „
	{ Two-Pin Upper Bicuspsids ... ..	2/9 „

---

*Sole Manufacturers (under Mr. Robbins' Authority):*

THE DENTAL MANUFACTURING COMPANY, LTD.,  
LONDON, MANCHESTER, and DUBLIN.

*To face first page of text.]*

## A.

**Abbreviations** in reference to periodical literature, and standard or official works. See list following Table of Contents.

This has been somewhat extended since the last edition, by the publication of new journals and such important works as the recent decennial revision of the United States Pharmacopœia. When periodicals are referred to by the date of issue (sometimes more conveniently than by volume or number), the year 1905 is always implied unless otherwise indicated. When the name or abbreviated title of a periodical is followed by numbers, the first one indicates the volume, and the second denotes the number of the part or issue in the volume, except when prefixed by p. for page. *See also* **Nomenclature, Notation, Stenography, etc.**

**A.B.C. Liniment** (*Linimentum Aconiti Compositum, G.H.*)—equal parts of the official liniments of aconite, belladonna, and chloroform—has been revived as a remedy for odontalgia, etc., carefully applied to a tooth cavity or the gum, and for periodontitis. May be very efficacious, but needs caution. A case was recently reported where a patient, in mistake, applied it rather freely to the outside of the cheek with alarming results. *See also* **Aconite.**

**Abies Balsamea.** The source of Canada Balsam or Terebenthina Canadensis off.

**Abrasion** of the teeth is differentiated from 'erosion' as due in part at least to attrition or friction, by *Eugene S. Talbot*,

in a paper read at the Fourth International Dental Congress, reprinted in *D. Surg.*, I., p. 27, and in *D. Cos.*, XLVII., p. 47. But abrasion, erosion, discoloration, and decay are by him classed together as caused or predisposed to by a lowered vitality of the body. In the discussion (see 'Transactions,' p. 195). James Truman thought 'erosion' and 'abrasion' almost synonymous, he and W. D. Miller showing that attrition alone was incapable of producing the observed results. See **Erosion**.

**Abscess** and fistular tracts, as well as pyorrhea, are treated with oxygen gas, either alone or in combination with certain medicaments by *Leger-Dorez*, whose monograph, presented to the Medical Academy, is translated in *B.D.J.*, commencing XXVI., 6, p. 263. See **Oxygen**.

**Abscess syringes** are now made with needles, either straight or curved, having a *square* transverse section, for which certain advantages and convenience are claimed.

**Absorbent Powders** for conveying liquid medicaments into root canals should be carefully chosen to be as chemically inert as possible, and not to combine and harden, as, for instance, zinc oxide may do with eugenol. This mixture has been called 'eugox.' It is not generally known that such mixtures often slowly set and are difficult to remove. One of the best powder vehicles is kaolin, a white aluminium silicate, with which almost anything may be mixed without reaction.

But in general it is better to employ liquid medicaments purely as fluids in root treatment when the utmost penetration is desired, introducing into thoroughly dried canals first by the small syringe nozzle and then by pressure on saturated cotton or amadou covered by rubber. This may be followed by a paste; when the greatest advantage will have been taken of capillarity. In sealing in, the solubility of gutta-percha and certain resins sometimes used in the fluid to be enclosed, must be kept in mind.

**Absorption** as closely simulating caries, in dental structures under certain conditions, is demonstrated by *W. D. Miller* ('Pathological Processes in Extra-oral Teeth'), *D. Cos.*, *XLVII.*, p. 10. He describes a number of instances in which large cavities closely resembling those of decay have been observed in teeth unerupted, impacted, or encysted, which have been considered to invalidate the chemico-parasitic theory of caries. Examination of the instances under his own notice show, however, only excavation, discoloration, partly dried fluids, etc., but without any microscopical evidence of caries. He considers the absorption may have commenced early in the history of the tooth structure.

**A.C.E.** mixture. Alcohol 1, chloroform 2, ether 3 parts, respectively. A general anæsthetic not so much used now as formerly. It was considered that the combination would give a safer anesthesia than chloroform, and more rapidly than ether. The proportions are approximately such, that according to specific volatility, there shall be a uniform evaporation of each constituent. As this can only hold good at a given temperature, the mixture, like those of the more volatile ethyls, etc., lately introduced, cannot be regarded as stable theoretically. *See Anæsthesia.*

**Acetic Acids.** *See Trichloroacetic Acid.*

**Acetone.** Dimethyl-Ketone. This, as having just been made official in the new U. S. P. (Acetonum), though not yet in B. P., may also be mentioned on account of its remarkable value as a solvent for many substances used in dentistry.

**Acetphenetidinum** is now the name adopted in the new U. S. P. for our Phenacetin, occasionally prescribed as a sedative in neuralgias of dental origin.

**Acetum Opii.** This new drug, official in U. S. P., has been mentioned in American literature as sometimes efficacious when applied in full strength to a cavity in pulpitis. As an internal remedy the dose is 8 minims.

**Acetylene.** As some operators use this gas as an indoor illuminant, it is well to point out that, notwithstanding the absorbing 'purifying' media generally relied upon, the gas often contains undesirable proportions of highly poisonous phosphorous and sulphur compounds not always detected by their smell. A very sensitive test-paper, however, can be obtained, known as Keppeler's test, which, held above an unlighted jet of the gas, indicates whether the gas is pure or contaminated.

**Acid Conditions.** *See Oral Hygiene.*

The question of acid conditions, and the normal existence of acids in the mouth, as bearing upon the phenomena of caries is thoroughly treated of by *E. C. Kirk (D. Cos., XLVII., p. 3)*, who regards it as demonstrated that certain organic acids, stated to be frequently present, cannot be considered as factors. He says:

'If calcium acid phosphate is a normal constituent of saliva, and lactic acid of fermentation is present to any appreciable extent in the saliva under ordinary conditions, then we should find calcium lactophosphate in normal salivas, which is not the case. That calcium lactophosphate may be formed as an artifact in salivas not protected from fermentation before examination by the polariscope is a conceivable possibility; but that source of error is provided against by means which effectively prevent fermentative decomposition of the fluid before analysis.'

**Acids.** *See under specific names.*

**Aconite.** In the use or prescription of this useful sedative in local acute inflammations, it is, unfortunately, imperative to bear well in mind the great difference in strengths between not only our B. P. extracts, tinctures, liniments, and Flemmings' tincture; but also that the U. S. P. tincture is seven times as strong as the B. P., and double that of the Codex. *See Chloroformum Aconiti; also A.B.C. Liniment.*



**Actinomycosis of the Mouth and Face.** A valuable paper on this subject was read by *T. H. Kellock* before the Odon. Soc. ('Transactions,' December, 1904), with statistics of the unusual number of ten cases.

The author states that the name actinomycosis was given because it was the prevalent idea that the fungus could be recognised by its 'starred' or 'ray-like' appearance, but that it has been found that there are several varieties of fungi or streptothrix that may act as the cause.

The author points out the necessity of suitably staining the specimens to be examined, as otherwise the result may be negative. It is pointed out that in cases where acute suppuration has supervened difficulty may be experienced in finding the streptothrix even after staining. The filaments of the streptothrices stain well by Gram's method.

The fungus was formerly supposed to flourish almost exclusively on straw or hay, and the chewing of these by man or beast was looked upon as the usual mode of its entry into the body. The occurrence of the disease among people of many and varied occupations seems to indicate that the organism has a much wider distribution.

The clinical history of actinomycosis is important, and when a patient presents himself with a sinus leading to a patch of bare bone in the mandible, with a history that it has persisted for some time, in spite of removal of the tooth supposed to be the cause of the trouble, and that *throughout the whole course of his ailment there has been little or no pain*, the nature of the disease may be a streptothrix infection. The organism may enter the body through a break in the continuity of the gum, carious teeth, or the ducts of the salivary glands. The latter avenue, although a common one in the cases reported by the author, is one that hardly ever seems to have been remarked upon.

As to the treatment, it is said that, the disease being a



communicable one, our efforts should first be in the direction of preventing its spread. The softened spots should be incised and scraped freely, all that is possible of the affected tissues being removed. Large doses of potassium iodide should be administered, beginning with a dose of 15 grains three times a day, increasing it gradually to 50 or 60 grains three or four times in the twenty-four hours, together with 3 or 4 minims of liquor arsenicalis with each dose of the iodide. The prognosis under this treatment is good.

**Actinomycosis—Tonsillar.** According to *Dr. Thevenot*, in *La Stomatologia*, Milan, January, 1905, the tonsil may constitute in certain cases the portal of entry to infective material. The cases of actinomycosis on record are comparatively rare. The one described by the author is particularly interesting in view of the fact that the patient's teeth were free from caries, and the appearance of the mouth altogether healthy up to the appearance of the infectious process around the mandible. The man in question was admitted to the hospital for the treatment of an attack of purulent tonsillitis. Shortly after his recovery, the tissues over the mandible began to swell, and became bluish and painful. The form of the swelling was irregular, and in the course of a few days fluctuation became noticeable. An exploring puncture was made, and in the liquid thus obtained were discovered a number of actinomyces and other forms of vegetable parasites.

**Actol**, Lactate of Silver, Argenti Lactas. A white soluble powder, recommended for general antiseptic use, and as a substitute for the citrate or nitrate. Hypodermic injection of 1 part in 500 water has been tried for chronic alveolar abscess. Can be used 1 in 200 for sterilizing.

**Adrenalin** (Suprarenin, Hemisin). The active principle of the suprarenal gland; a gray crystalline powder, nearly insoluble. Used as chloride solution, being 1 part of the

salt to 1,000 normal solution sometimes with 0·5 per cent. chloretone. Said to be best kept in the dark and closely stoppered, or it may deteriorate.

This is also known by other names, and is mostly used in combination with cocaine and eucaine for injection, local anæsthesia, or pressure treatment of the pulp. It is said to be incompatible with Stovaine (which see), a much used local anæsthetic on the Continent. Empirical combinations of the above-mentioned drugs are largely sold under various names, such as eudrenine, etc.

Much has been lately written about its use as a styptic, especially after the extirpation of pulps under pressure anæsthesia, but for ordinary hæmorrhage after (for instance) tooth extraction, although generally efficacious, it occasionally fails altogether. Nevertheless, it has been described in many recent medical and dental monographs as the most powerful hemostatic known.

The amount of literature upon it testifies to the interest aroused in this singular product of organic materia medica. It is said by *Livon* (*Klinisch. Thera. Woch.*, 1904, 11) that the simple solution may be kept physiologically active for at least a year by the addition of 6 per cent. of hydrochloric acid.

In *B. Voigt's* opinion the utility of adrenalin centres in its stimulating effect upon the heart and its power of raising the tone of the muscular system of the vessels in general. This view would also account for the pallor and the hard pulse resulting from the administration of adrenalin.

From the papers of others and his own experience, *Luniatschek* (*Deutsche Zahnärz. Woch.*, 1904, 29) has formulated the following prescription for the preparation of a suitable solution in dental operations:

R.	Solut. cocainæ hydrochlor. (0·5 per cent.)	1 c.c.	..	III	16
	Solut. adrenalinae (1 : 1,000)	..	..	..	gutt. III.

The operation should be carried out five minutes after

the injection. The solution is indicated in excavations, glossitis, and extractions of the pulp. The author noted that this treatment was invariably attended with pallor of the face and an increased frequency of the pulse. If untoward symptoms present themselves he advocates the use of morphia or codeine, but he discountenances that of excitants.

According to the late edition of *Merck's Report*, p. 13 (where also much information will be found upon the medical uses of the drug), 'warning voices have not been wanting showing that the preparation is not so entirely harmless as was hitherto supposed. Notes to this effect have been published by Chr. Greve, W. Kantz, Oppenheimer, Boinet, Aronheim, Neugebauer, and Schücking.

Greve refers to a few dental operations in which violent secondary hæmorrhage occurred. Kantz views adrenalin in the light of a cardiac poison and, although he does not discountenance its use, he considers it advisable to carefully examine the heart of the patient, and to reduce each dose as far as possible so as to obviate intoxication. Oppenheimer witnessed an unpleasant reactive secondary hæmorrhage arising from the administration of hemisin in a case of advanced iritis, and recommends accordingly the exercise of caution in the presence of pronounced symptoms of inflammation, as well as with aged people. In the latter connection Neugebauer holds similar views. Aronheim witnessed likewise in the case of an old man of seventy an extensive cellulitis as the consequence of injections of adrenalin, and Schücking records that in the case of a female patient adrenalin gave rise to a deep blue-black coloration of the skin and superficial breathing, which persisted for half an hour, and was followed by vomiting.

It goes without saying that the cases which we have quoted do not militate against the therapeutic value of adrenalin. Indeed, since it has not even been shown with

certainly whether adrenalin as such or some unknown admixture is responsible for the negative results which have come under observation, it is for the present advisable to use a preparation of the highest degree of purity, so as to eliminate all risk of intoxication and irritation. It is also imperative to adapt the use of adrelin carefully to the patient's individual disposition.

**Æthylis Chloridum.** Under this official name, ethyl chloride, not yet in B. P., is included in the new U. S. P. Specific gravity is said to be 0·919 at 8° C., and boiling-point 12·5° to 13° C. Is directed to be free from HCl, alcohol, and sulphur compounds.

**Africa.** In British South Africa license to practise dentistry is granted only to those holders of diplomas, degrees, or certificates which entitle the holder to practise as a dentist in the country in which it was granted, and when by the laws of that country British subjects legally qualified to practise as dentists in Great Britain and Ireland are afforded equivalent privileges.

In Cape Colony the license is signed by the Colonial Secretary, on the recommendation of the Colonial Medical Council. All dental qualifications recognised by the General Medical Council of the United Kingdom entitle the holders to registration. If the applicant bases his claim on the circumstance that he practised before July 22, 1878, the production of the General Medical Council's certificate to that effect will be called for, except if he happens also to be a licensed dental surgeon under the Act of 1878. Dental diplomas registrable in Cape Colony must cover a minimum curriculum of three years, and applicants must produce with their diplomas a sworn declaration of identity, of the authenticity of the said diplomas, and of the fact that they are entitled to practise as qualified dentists in the countries where the diplomas were granted, and that they have never been

debarred from practice in any country by reason of a misdemeanour or professional misconduct. The license fee is £2 10s.

In Natal application for registration is made in writing to the Colonial Secretary, who remits it to the Natal Medical Council. Dental qualifications, certificates, diplomas, degrees, or titles recognised by the General Medical Council entitle the holders to registration, but there must be the same sworn information as in the case of Cape Colony.

Those lawfully entitled to practise in Cape Colony are admitted to practise in Southern Rhodesia, also licentiates in dental surgery or dentistry in the United Kingdom or any British Colony or Possession.

During recent years the rapid developments in the Transvaal Colony, and the great influx of dental and other professional practitioners, have necessitated some formal regulations for the future control of practice there. Accordingly, there was promulgated in the *Government Gazette* of August 12, 1904, an Ordinance, as signed by Lord Milner in Council, dated August 9 :

To make provision for the Registration of Medical Practitioners Dentists Chemists and Druggists Midwives and Nurses and for the better regulation of medical practice and the sale and dispensing of drugs medicines and poisons.

As this is of importance to all who may contemplate relations with the Colony, in view of many opportunities for private or company practice which by numerous advertisements in the press are being offered, it should be carefully studied by those concerned. Below are reproduced the preamble and those sections which directly concern the position and status of practitioners in the future there.

BE IT ENACTED by the Lieutenant-Governor of the Transvaal with the advice and consent of the Legislative Council thereof as follows :

## PART I.

### PRELIMINARY.

1. This Ordinance may be cited as the Medical Dental and Pharmacy Ordinance, 1904.

2. This Ordinance shall take effect on such day as the Lieutenant-Governor shall appoint by Proclamation in the *Gazette* but the eighth section hereof shall take effect forthwith after the passing of this Ordinance.

3. In this Ordinance unless inconsistent with the context—

‘medical practitioner’ shall mean every person lawfully entitled to practise in this Colony as a physician surgeon and accoucheur on the day before the taking effect of this Ordinance and also every person duly qualified by registration under this Ordinance to practise as a physician surgeon and accoucheur within this Colony ;

‘chemist and druggist’ shall mean every person lawfully entitled to practise as a chemist and druggist in this Colony on the day before the taking effect of this Ordinance and also every person duly registered under this Ordinance as a chemist and druggist ;

‘dentist’ shall mean every person lawfully entitled to practise as a dentist or dental surgeon in this Colony either separately or in addition to his practice as a medical practitioner or chemist and druggist on the day before the taking effect of this Ordinance and also every person duly qualified by registration under this Ordinance to practise as a dentist within this Colony ;

‘midwife’ shall mean every person duly registered as such under this Ordinance ;

‘nurse’ shall mean every trained nurse registered under this Ordinance ;

‘Council’ shall mean the Transvaal Medical Council established under this Ordinance ;

‘Board’ shall mean the Transvaal Pharmacy Board established under this Ordinance.

4. The Laws and Volksraad Resolutions contained in the First Schedule to this Ordinance are hereby repealed ; and so much of any other law as may be repugnant to or inconsistent with the provisions of this Ordinance.

## PART II.

### CONSTITUTION AND GENERAL POWERS OF THE TRANSVAAL MEDICAL COUNCIL AND THE TRANSVAAL PHARMACY BOARD.

5. On the day of the taking effect of this Ordinance there shall be established in this Colony—

(a) a body to be styled the Transvaal Medical Council, and

(b) a body to be styled the Transvaal Pharmacy Board.

6. The Council shall consist of eight medical practitioners and two dentists ; of the medical practitioners two shall be nominated by the Lieutenant-Governor the Medical Officer of Health of the Colony being one of them and of the dentists one shall be so nominated ;



six medical practitioners and one dentist shall be elected by the medical practitioners and dentists of the Colony respectively in manner hereinafter provided. Not more than three of the elected medical practitioners shall be resident in one district.

Sections 7 to 10 deal at length with the Pharmacy Board and the method of election of the Council and the Board, which are to serve for three years.

11. The dentists appointed as members of the Council as aforesaid shall be entitled to be present at all meetings of the Council but unless such dentists be also qualified medical practitioners they shall not be entitled to vote upon any question or matter brought before the Council unless by resolution of the majority of the members thereof such question or matter has been decided to relate to dentistry or dental surgery; provided however that such dentists shall be qualified to vote in any election of a President of the Council should such post from any cause become vacant.

Sections 12 to 16 regulate the procedure of the Council and the Board.

### PART III.

#### REGISTRATION CERTIFICATES FOR MEDICAL PRACTITIONERS DENTISTS CHEMISTS AND DRUGGISTS MIDWIVES AND NURSES.

17. Every person who on the day before taking effect of this Ordinance shall be in this Colony—

(a) lawfully entitled to practise as a medical practitioner; or

(b) lawfully entitled to practise as a dentist; or

(c) lawfully entitled to practise as a chemist and druggist;

shall notwithstanding the passing of this Ordinance be entitled to continue to practise or carry on his calling as aforesaid and shall be entitled without charge to the registration certificate referred to in sections *eighteen* and *twenty-three* as the case may be; provided that—

(1) the names addresses and qualifications of all such persons shall as soon as may be after the taking effect of this Ordinance be entered in the register referred to in this Ordinance;

(2) every such person shall on and after the said date be amenable to all the provisions of this Ordinance or of any law relating to medical practitioners dentists or chemists and druggists as the case may be;

(3) every such dentist as aforesaid shall be placed upon the aforesaid register upon production to the Secretary of the Council within two months after the aforesaid date of a declaration in the form of the Second Schedule to this Ordinance signed by him and setting forth his name and address and his qualification for the practice of dental surgery;

(4) no omission of or mistake in any entry which should be made in the aforesaid register in accordance with subsection (1)



of this section shall be deemed to prejudice the right of the person in respect of whose name address or qualification such omission or mistake has occurred to practise as aforesaid if lawfully entitled to do so.

18. On and after the day on which this Ordinance takes effect no person (save and except such person as is referred to in the last preceding section) shall be entitled to practise as a medical practitioner or dentist unless he has obtained a registration certificate signed by the Colonial Secretary on the recommendation of the Council on payment of a fee of ten pounds; previously to obtaining such registration certificate such person shall submit his diploma or other certificate of his being duly qualified to practise as a medical practitioner or dentist as the case may be for the examination and approval of the Council who may require by sworn declaration before a Justice of the Peace or by other evidence such proof of identity and character of such person and of the authenticity and present validity of such diploma or certificate as it shall deem fit and any person wilfully making a false statement in such declaration shall be liable to the penalties provided by law for the crime of perjury; provided always that the Colonial Secretary shall if the Council be satisfied with the proof of his identity and good character grant a certificate to every applicant whose name appears in the British Medical Register or who is entitled to be registered in Great Britain and Ireland; and provided further that the Lieutenant-Governor may at any time within six months from the date of the taking effect of this Ordinance, anything in this Ordinance or any other law to the contrary notwithstanding, grant a license to be admitted as a medical practitioner to any person with whose qualification and experience he is satisfied and who shall for a period of twelve years prior to the taking effect of Proclamation (Transvaal) No. 1 of 1902 have been continuously practising as a physician surgeon or accoucheur in this Colony and the name of such person shall thereupon be entered in the register referred to in this Ordinance.

19. No such registration certificate as aforesaid shall be granted to any applicant to practise as a medical practitioner or dentist by virtue of the degree diploma or certificate of a foreign or colonial university or medical school unless it be proved to the satisfaction of the Council that:

- (1) the said degree or diploma entitled the holder to practise as a medical practitioner or dentist as the case may be in the country or state in which it was granted;
- (2) by the laws of the country in which such degree or diploma was conferred British subjects legally qualified to practise as medical practitioners or dentists in Great Britain and Ireland are afforded privileges equivalent to those granted by registration under this Ordinance;
- (3) the curriculum and standard of proficiency of examination required for such degree diploma or certificate are not lower than those prescribed by the General Council of Medical Education of the United Kingdom;

provided always that anything to the contrary notwithstanding in this or any other section of this Ordinance contained any person

who shall have been in actual practice as a dentist in the Transvaal prior to the date of the taking effect of Proclamation (Transvaal) No. 1 of 1902 and who was qualified to practise as such dentist under the laws in force prior to such date as aforesaid shall be entitled to a certificate of registration and to have his name entered on the register referred to in this Ordinance.

20. Where the Council has refused to approve of the diploma or certificate submitted in terms of section *eighteen* or *nineteen* by any person desirous of being registered as a medical practitioner or dentist the Supreme Court on application made to it by such person may after notice of such application has been given to the Council order that a registration certificate be issued to the applicant in case it shall be of opinion that the Council has not acted in accordance with the provisions of the said sections and the name of such applicant shall thereupon be entered in the register referred to in this Ordinance.

Sections 21 to 26 relate to medical practitioners and chemists and druggists only.

27. Persons who have served an apprenticeship of not less than three years to a dentist entitled to be registered under this Ordinance and who are *bonâ fide* engaged as mechanical assistants to dentists in this Colony at the date of the passing of this Ordinance may register as students within two months thereof and during the next two years may present themselves for examination under rules to be drawn up by the Council and if approved of after such examination by the Council the Colonial Secretary shall grant certificates of registration to such persons under this Ordinance to practise as dentists.

Sections 28 to 34 deal with trained nurses and midwives only.

35. The Council shall in the month of January in each year publish in the *Gazette* a list containing the names of all holders on the 31st of December last preceding of registration certificates as

- (a) medical practitioners;
- (b) dentists;
- (c) chemists and druggists;
- (d) midwives;
- (e) nurses;

any such list shall wherever possible state the addresses of such holders.

36. No person shall be deemed to be disqualified to be duly registered and lawfully entitled to practise as a medical practitioner dentist or chemist and druggist merely by reason that such person is a female.

37. No society or association of persons who are not registered under this Ordinance may use the descriptions or titles provided herein nor may any company incorporated by law carry on the business of chemist and druggist unless the managing director of such company is a duly registered chemist and druggist and unless

the name of the assistant who himself must be qualified under this Ordinance managing such shop or other place in which the business is carried on by the company is conspicuously posted in such shop or place ; provided that anything which would be an offence under this Ordinance if committed by an individual shall be an offence by every director of a company if committed by such company ; provided further that nothing in this section shall be held to prevent the employment by any registered dentist or chemist and druggist as the case may be of an unqualified assistant or assistants for the purpose of mechanical dental work or of compounding drugs and dispensing medicines under his personal supervision.

38. Any person who shall wilfully procure or attempt to procure himself or any other person to be registered under this Ordinance by making or producing or causing to be made or produced any false or fraudulent representation either verbally or in writing not amounting to the crime of perjury and every person aiding or assisting him therein shall on conviction thereof be liable to be imprisoned with or without hard labour for a period not exceeding twelve months.

39. Any person who shall wilfully and falsely pretend to be or take or use the name or title of a physician doctor of medicine licentiate in medicine or surgery bachelor of medicine doctor surgeon general medical practitioner or apothecary or dentist or chemist or druggist or any name title addition or description implying or calculated to lead people to infer that he is registered under this Ordinance or that he is duly qualified to practise as a physician doctor of medicine or surgeon or licentiate in medicine and surgery bachelor of medicine doctor general medical practitioner or an apothecary or a dentist or a chemist and druggist and any person who shall practise or shall do any thing or perform such acts as specially belong to the calling of a medical practitioner dentist or chemist and druggist respectively without such registration as aforesaid shall be liable to a fine not exceeding one hundred pounds for each offence and in default of payment he shall be liable to imprisonment with or without hard labour for a period not exceeding six months unless such fine be sooner paid.

No person who is charged with a contravention of this section for practising as a dentist or chemist and druggist shall be acquitted by reason of the fact that he is in the employ of or is agent for a person lawfully entitled to practise as aforesaid unless he is under the personal supervision and control of such last mentioned person.

#### PART IV.

#### REGISTER OF MEDICAL PRACTITIONERS DENTISTS CHEMISTS AND DRUGGISTS AND CERTIFICATED MIDWIVES AND NURSES.

Section 40 provides for the keeping and correction of the official register.

41. Every person registered under this Ordinance who may have obtained any degree or qualification other than the degree or qualification in respect of which he may be registered may with the

consent in writing of the Council or Board as the case may be have such other degree or qualification inserted in the register in substitution for or in addition to the degree or qualification already registered on payment of such fee as may be prescribed by regulations made by the Council or Board as the case may be and approved of and published as in the Ordinance is provided.

42. No degree or qualification shall be entered on the register either on the first registration or by way of addition to a registered name or as in the last section mentioned unless the Council or Board as the case may be be satisfied by the proper evidence that the person claiming it is entitled to it; and any entry which shall be proved to the satisfaction of the Council or Board to have been fraudulently or incorrectly made may be erased from the register; provided that a record of the reason for every such erasure shall be signed by or on behalf of the Colonial Secretary and kept in his office.

43. The Colonial Secretary shall at the request of the Council or Board as the case may be cause to be erased from the register the name of any person who either before or after the passing of this Ordinance may have been declared disqualified for practice or whose name may have been struck off the roll register or record of the hospital university college or other body in this Colony or elsewhere from which such person received any diploma degree certificate or any other instrument upon the faith of which such person was permitted to practise in this Colony and thereupon such person shall no longer be deemed to be a medical practitioner dentist or chemist and druggist nurse or midwife as the case may be; provided that the Colonial Secretary before causing the name of such person to be erased shall be satisfied that such person has if possible had an opportunity of showing cause before the Council or Board as the case may be why his name should not be erased from such register.

44. If any person registered or certificated under this Ordinance shall after due inquiry at which such person shall have an opportunity for being heard be judged by the Council or Board as the case may be to have been guilty of improper or unprofessional conduct the Council or Board as the case may be may reprimand and caution such person in writing under the hand of its President and if such improper or unprofessional conduct be persisted in by such person after due receipt of such reprimand or caution or if the Council or Board as the case may be shall judge such person after such inquiry to have been guilty of infamous or disgraceful conduct in any professional or other respect the Colonial Secretary may on the advice of the Council or Board direct that the name of such person be erased from the register and that his certificate be withdrawn and cancelled. The Council or Board as the case may be shall make such inquiry upon *bonâ fide* information or complaint made by any member of the public or by the Medical Officer of Health for the Transvaal; provided that the name of such person may be restored thereafter to the register on the request of the Council or Board as the case may be; and provided further that no person whose name shall be erased from the register under this section shall be qualified to practise the profession or carry on the calling in respect of which he was registered until his name shall have been restored as aforesaid.

Sections 45 and 46 are penal clauses further dealing with misrepresentation and conspiracy as infamous conduct.

## PART V.

## KEEPING AND SALE OF POISONS.

Sections 47 to 53, regulating this, apply equally to medical and dental practitioners, and are very stringent, as witness the following :

54. If any person shall keep in his possession or under his control any poison without exercising all due care and caution in the custody of the same he shall be liable to a fine not exceeding ten pounds or in default of payment to imprisonment for a period not exceeding one month.

Sections 55 to 58 are further penal clauses respecting poisons, embracing specifically dentists.

## PART VI.

## MISCELLANEOUS.

Sections 59 to the last, 69, are of general powers respecting litigation, recovery of fees, appointments, and finance.

Passed in Council this eighth day of August One thousand Nine hundred and Four.

E. M. O. CLOUGH,  
Clerk to the Council.

Authenticated under my Hand and Seal :

ARTHUR LAWLEY,  
Lieutenant-Governor.

Pretoria, 9th August, 1904.

Assented to :

MILNER,  
Governor.

Johannesburg, 10th August, 1904.

The Second Schedule referred to is as follows :

I..... residing at .. .....and holding the qualifications of..... hereby declare that I was *bonâ fide* engaged in the practice of dentistry at ..... at the date of the taking effect of the ' Medical Dental and Pharmacy Ordinance 1904.'

Dated at.....this.....day of.....19...  
(Signed)

(Witness)



The Ordinance ends with a list of scheduled poisons, the keeping and sale of which by dentists are regulated.

The main points of interest in this the latest attempt at dental legislation, which anticipate certain features of proposed new laws at home, are :

- (a) Prohibition of practice in addition to assumption of title.
- (b) Stringent regulation of company practice.
- (c) Definite recognition of the principle of ' reciprocity ' with other countries.

The result of the enforcement of these advanced ideas will be watched with much interest. *See also Transvaal.*

The above, which appeared in the last edition of the DENTAL ANNUAL, we think of sufficient interest to reproduce this year, considering that we are possibly on the eve of revolutionary legislation, or attempted legislation, at home.

**Agents, Dental Transfer, etc.** *See* Manufacturers, Dealers, and Dental Depots. [*Also* Index to Advertisements.]

**Aichi Dental College** *See* Japan.

**Air Cells** in the pneumatic bones of birds of flight are compared morphologically with the accessory sinuses in man by *W. T. Eckley*, in a paper before the Fourth International Dental Congress (*Transactions and D. Cos.*, XLVII., p. 1), who concludes that :

1. The sinuses in man are phylogenetically very ancient structures, and are analogous to the air cells in the pneumatic bones of birds of flight.

2. The function of the sinuses is twofold: (a) Locally respiratory and subsidiary to the lungs; (b) the maxillary sinus in the higher vertebrates is phylogenetically an organ of smell, having its prototype in the accessory nasal chamber of the amphibian.

3. For unaccountable reasons the sinuses develop *pari passu* with the generative organs.

4. The variations are so great as to make classification looking to definite size and shape impossible, and for embryologic reasons each sinus is a law unto itself.

**Airol** (Airogen, Airoform), Bismuthi Oxy-Iodogallas. A gray-green powder, odourless and tasteless, one of many substitutes for iodoform in antiseptic treatment and filling of roots.

A remarkable property is attributed to this agent as diagnostic of inflammation and caries extending to the bone. In diseases of the bone, especially of the jaws and ear, there is a slow, continuous evolution of sulphurated hydrogen. This blackens bismuth compounds such as airol, so that applications of it on wool or airol gauze turning black is a strong indication of osseous inflammation or caries.

**Ajacol.** A derivative of creosote, resembling thymol or phenol. Said to have strikingly rapid anodyne properties in pulpitis, etc.

**Alabastine.** Naphthalene.

**Albargin.** A proteid compound of silver, containing 15 per cent. Ag; freely soluble in water, non-irritating.

Has been found very penetrating and bactericidal in solutions up to 5 or 10 per cent., with the addition of glycerine, in ulcerative stomatitis and patches suspected to be of syphilitic origin.

**Albumin.** The admitted coagulation of albuminous tissues by some of the most powerful and effective chemical antiseptics or germicides has been persistently urged as limiting their sphere of action. But it is stated, as the results of direct experiment, that this is not so; the coagulum being always pervious to the continued action of fresh supplies of the agent through it. If this is con-



firmed, the old distinction between coagulating and non-coagulating medicaments may be of no importance.

Simple egg-albumin, we are personally assured, on the high authority of the late *Mr. James Smith Turner*, painted upon the model, counterpart, and all parts of the plaster investment in the vulcanizing flask before packing, will insure a fine smooth surface to the hardened vulcanite.

Albumins and fats, and their splitting up by enzymes, especially in the mouth (an important factor in erosion and caries), are dealt with by *J. E. Hinkins* in *D. Cos.*, *XLVII.*, p. 3.

**Alcohol** in the new U. S. P. (represented by the Sp. Rect. of the B. P., 85.6 per cent. by weight) has been made 92.3 per cent. absolute alcohol. All American tinctures are thus likely to be of higher spirituous value, and the difference must in some formulæ be allowed for.

Alcohol in many solutions of antiseptic substances has been found to inhibit the bactericidal power of such antiseptics as are also soluble in water.

It is also considered by many observers that the so-called antiseptic action of alcohol *per se* is less a destruction of bacterial protoplasm than a kind of anæsthesia. Thus, as by strong ammonia, chloroform, chloral, and similar agents, the immobility of bacteria produced is not always by the destruction of their vitality. This is discussed by *G. W. Cook* in a paper at the Fourth International Dental Congress (*Transactions* and *D. Cos.*, *XLVII.*, p. 1), who shows that the poisonous chemical action of various alcohols increases with the carbon content of the molecule. Thus from methyl alcohol, ethyl, and through the series to isopropyl, etc., the toxicity increases with the carbon atoms.

The injection of hot alcohol (60° C.) for the treatment of neuralgia has been tried with remarkable success in certain cases (*D. Cos.*, *XLVII.*, p. 1134).

**Alloys.** With the increased facilities for melting metals, especially the most refractory, by the electric arc, and the growing demand for the useful and precious ones, a number of new and interesting combinations, of the great bronze family particularly, have rewarded careful modern metallurgical research.

Very surprising changes, it is well known, in the physical properties of metallic compounds are caused by the smallest possible difference in the amount of a perhaps minor constituent, or possibly what was regarded as a trace of impurity; and as very little is yet known of the real atomic combinations of these elements—and the number of permutations are practically endless—there are likely to be many surprises always in store. As the dental uses for alloys are peculiar though limited, the field of future discovery is still promising. Such uses are mainly and roughly three: viz., as fillings, structural in prosthetic appliances, and as instrumental in tools and materials for surgical or workshop processes. For the first, see **Amalgams**; for the last, see **Casting and Swaging**.

From the early observation that as little as 5 per cent. of aluminium added to copper lightened the colour to a pale yellow and conferred considerable resistance to oxidation without impairing the ductility of copper, to the further experimental determination of a variety of qualities obtained by increasing amounts of aluminium, several such binary compounds being quite characteristic atomic combinations, a further step to a third or fourth constituent—such as magnesium, silver, tin or zinc, etc.—has led to a brilliant and fascinating series, almost inexhaustible, of apparently definite and stable compounds. What the nature of the mixture may be between the fixed points of certain approximate atomic proportions we do not know, although the academic theories of the existence of one or

more of the constituent metals in another as a state of indifferent solution, or as a liquid held in a sponge or in a truly gaseous state, is being strikingly confirmed by many phenomena. All the more singular and instructive, if taken advantage of, are those special definite alloys (when this term may be usefully confined to distinguish them) where the resulting body has all the properties and appearance of a really distinct new elementary substance.

The importance of this may be realized from the fact that the empirical platino-silver used and known as 'dental alloy' since 1835, though commonly regarded as containing from 20 to 30 per cent. of Pt, according to an arbitrary 'quality,' yet in reality varies considerably both above and below these limits, from the difficulty of making and retaining uniformity. Hence, notwithstanding its usefulness, it is in unstable equilibrium, and constantly varying when being worked. On the other hand, such silver-copper alloys as AgCu (63 per cent. silver) of Roberts-Austin, or  $\text{Ag}_3\text{Cu}_2$  (71 per cent. silver) of Levol, are homogeneous, and do not liquefy or separate in melting and cooling. Similar are the aluminium bronzes  $\text{Cu}_3\text{Al}$ ,  $\text{CuAl}$ , and  $\text{CuAl}_3$ . (See Guillet, *Comptes Rendus*, CXXXIII.) Probably an approach to practical formulæ is Von Eckart's alloy, so much used in France, of silver 3·5, platinum 2·4, and copper 11·7. This has quite remarkable mechanical properties, retaining elasticity after annealing, but tarnishes.

The silver-aluminium alloys have not been so carefully investigated. That one called Tiers-Argent in France is supposed to contain about 33·3 per cent. of silver, and another much used has at least 95 per cent. of aluminium, keeping good colour.

A series of alloys, called 'magnalium,' of magnesium and aluminium, containing from 5 to 30 per cent. of magnesium, are exceedingly interesting; that with about

10 per cent. magnesium greatly resembles silver and is almost untarnishable. A white tough alloy, known as Carrol's, has been successfully used for cheap base plates, consisting of aluminium-silver with some copper, and is stated to be of stable atomic composition. A similar alloy, called Griffith's, is even cheaper, with the silver replaced by both magnesium and zinc. This is equally white and strong, but discolours.

The aluminium bronzes are easily worked in every way, but plates in swaging require frequent annealing. They are without difficulty soldered with 14-carat red gold, or with the ordinary gold solders. A very low melting solder is made by adding from 10 to 15 per cent. ordinary copper-tin bronze to fusible gold solder.

A great variety of fancy names have been given to the newer alloys commercially introduced with some mystery, which is not a little confusing, in many instances practically the same alloy being differently designated, according to the maker and country. For instance, just as 'German silver' is devoid of silver, being a brass to which nickel is added, so various kinds of 'gold' are innocent of aurum. A high grade of 'German silver,' with at least 20 to 30 per cent. of nickel, is known as 'Victoria metal'; and a simple binary copper and nickel is considerably used in America as 'goldoid,' with some useful qualities, though it is stiff and harsh to work.

An interesting question about metals and their alloys in dental prosthetic work is their compatibility with vulcanite, being so much used in combination.

Some pure metals are completely incompatible with rubber, either structurally or completely buried as strengtheners, and yet, as for instance copper and silver, are very much less so when alloyed together. As is known, pure gold, platinum, iridium, palladium, aluminium, nickel, Weston's metal, and tin are unaffected by

the vulcanization of caoutchouc, and may be used with it in any way; magnalium, dental alloy, 18-carat gold alloy, German silver, brass, and 'goldoid' being slightly affected. But the interesting point as to the conditions or possibility of an adhesion between rubber and metallic bodies vulcanized together has only lately been investigated. The question would seem to be of great practical importance in the many instances of metal base plates with vulcanite attachment. *W. M. Bartlett*, of St. Louis, has quite recently carefully experimented thoroughly on this, and in the *D. Rev.*, XVIII., p. 943, draws some curious conclusions.

The result of vulcanizing polished metal surfaces in contact with rubber in the usual way proved that the greatest amount of mechanical or chemical adhesion (it is not certain which) was obtained with 18-carat gold alloy, the next less with 20-carat, a little with brass, German silver, Victoria metal, and dental alloy, but none whatever with the other samples of some twenty different metals and alloys tried. In venturing upon an explanation of his results *Dr. Bartlett* says:

'A certain amount of silver, or a certain amount of copper, or an alloy of both in the approximate proportions of 2 parts of silver to 1 of copper, must be added to those metal bases which form no union with vulcanite (gold, platinum, nickel, etc.) if we wish to bring about an adhesion between the metal base and the rubber. If we keep in mind that neither silver nor copper will unite with rubber—nay, will be partly destroyed in itself and prevent even the rubber from becoming thoroughly hardened during vulcanization—it seems *a priori* paradoxical to attribute to these metals a favourable influence upon the union of the two substances. Considering, however, a metal base alloyed with a silver-copper to the extent of about 25 per cent. in its union with vulcanite from a

chemical standpoint, we may become convinced of the soundness of the following theory, which I offer in explanation of this remarkable phenomenon. During the process of vulcanization of rubber upon metallic bases other than silver and copper, but alloyed with these two metals in certain proportions, the liberated sulphuretted hydrogen in its nascent state acts upon this silver and copper alloy, forming respectively silver and copper sulphides. This chemical removal of the alloy from the metal base will leave the surface of the base in a more or less pitted condition, and this fresh, rough surface offers a suitable place for the ready adhesion of the vulcanite to the metal. Whether the sulphides of silver or copper in their *statu nascendi* are instrumental in bringing about a closer union is, in my mind, doubtful. If this were the case vulcanization upon pure silver and pure copper would not be failures.

‘ From the above experiments we find that there is sufficient adhesion of vulcanite to 20-carat and 18-carat gold for all practical use, were it not for the fact that there is in time a change occurring in the vulcanite which, as it contracts upon itself, becomes detached from the metal base ; so to obtain the best results it is necessary to aid adhesion of vulcanite to the metal base by roughening the contact of the base, attaching soldered pins or loops so that they can be finally imbedded in the indurated rubber.’

A very remarkable series of alloys of nickel and iron have been found to have an extraordinary small coefficient of thermal expansion. One such, with an alteration barely detectable within the limits of ordinary temperature changes, has been variously named, but is most generally known as Invar, proposed, and already somewhat used, for certain instruments of precision, standards of length, etc. This property and its cheapness has led to experiments in its use for the pins of porcelain teeth ; and it is



believed that certain of the cheaper kinds of teeth now being sold have pins of some modification of this iron-nickel alloy in substitution for platinum, so long exclusively used. We understand that when entirely buried and covered by vulcanite these pins have the necessary properties, though, for many obvious reasons, they cannot take the place of the noble metal alloys for general work.

**Alsol** (Aluminii Aceto-Tartras), a very soluble astringent and antiseptic, is employed in 1 or 2 per cent. solution as a mouth-wash and gargle.

**Aluminii Acetici** (Liquor), containing some 8 per cent. of aluminium subacetate, has been much used as a mouth-wash and gargle diluted with 1 to 5 of orange-flower water. Astringent and antiseptic. Gauze and cotton is also impregnated with it.

**Aluminii Aceto-tartras.** See **Alsol**, also **Mouth-Wash**.

**Aluminii Chloridi** (Liquor). An inodorous, strongly astringent and antiseptic liquid; having acid reaction, should be most cautiously employed.

**Aluminii Sulphocarbolas.** See **Sozal**. These modern alum derivatives, being mostly very potent and generally very soluble in various menstrua, have been the bases or main constituents of numerous fancy-named mouth-wash preparations, much being made of the fact that they do not coagulate albumin, or at least redissolve it. Thus they cannot be used as styptics.

The best astringent form is the *Alumen Exsiccatum*, the potash salt, which contains 45 per cent. less water than the crystal form. As this is quite slowly though completely soluble in water, it is an admirable application in hæmorrhage, often succeeding when other things fail. Of the two alums, the potash salt is also the one used in solution for the hardening and quick-setting of plaster of Paris. The ordinary alum mouth-wash should have from 5 to 10 grains to the fluid ounce of water. The



addition of glycerine in some cases prolongs the therapeutic effect, while retarding the hæmostatic and astringent action. In fact, the strong official glycerine solution, which is practically 1 in 6, may be applied as a pigment full strength without being caustic.

The routine use of alum mouth-washes, or those containing it, should be strongly discouraged, except in edentulous mouths, on account of its acid reaction, and even in such cases where the gum tissue is healthy and normal, as the constant astringency produces atrophy and premature shrinkage.

**Aluminium.** Since the article upon this metal was written for the last edition (see p. 18, 1905) at least two important contributions to our knowledge of it have been made to the profession. At the fourth International Congress at St. Louis a valuable paper was presented upon the 'Uses of Aluminium,' by *W. Pfaff*, of Dresden, Germany, dealing with the technique of its employment very fully, but not printed till recently in the *Transactions* and the *Cosmos* of February, p. 236. We are justified in abstracting what appears to be new and serviceable in this, on account of the remarkable statement made by *Mr. W. Booth Pearsall* in a special article in the *B.D.J.* of July 15. *Mr. Pearsall* says that from considerable experience he is convinced that in the gouty diathesis aluminium base plates are far superior to gold or any other material known. He has observed that in instances where the mouth continued to be red, with tenderness to pressure, and a sensation of discomfort amounting to continual pain, long after being edentulous and armed with a perfectly-fitting complete denture in gold, and prolonged treatment with suitable washes; these symptoms had largely subsided after the employment of aluminium. *Mr. Pearsall* says:

'In one of these cases I was induced to try the effect

of continuous gum, and I made what the patient who tried it described as "a forward step." The mouth did not get heated, the sense of taste was more acute, and the dentures the most comfortable ever worn. The same kind of denture was tried by a relative of this patient, but not with the same sense of comfort as was expected. The continuous gum denture was certainly more comfortable in use than when vulcanite rested on the gum, but not much more so than when a gold plate was used.'

But he is emphatic that aluminium always gives the best results in these special cases. No physical or chemical reason is assigned, so that it must be concluded that higher thermal conductivity is the factor in the effect. The 'casting' process is not mentioned, *Mr. Pearsall* using swaged plates, the best construction of which he describes, according to Dr. Haskell of Chicago; attaching the teeth by vulcanite. The technique of this is more fully detailed in the paper by *W. Pfaff*, to be presently alluded to. In conclusion, *Mr. Pearsall* says :

'To sum up briefly the result of ten years' observation, I would class dentures in the case of gouty patients in the following order of usefulness: (1) Aluminium, (2) continuous gum, (3) gold, (4) vulcanite. Indeed, so far as my experience and observation have extended, I would say that vulcanite should *not* be worn on the gum by gouty patients.'

*W. Pfaff's* paper, above alluded to, discusses, firstly, extensive researches by him and others on the corrosibility of aluminium respecting the fluids of the mouth, foods, and drinks; secondly, its mechanical properties; and, thirdly, its best applicability in dentistry. He quotes largely from books, mostly of German origin, experiments on the interaction of aluminium with fluid and solid

substances under various conditions, with the result that he states that :

‘The fluids which we have to consider in respect to the human organism—*e.g.*, pus, saliva, perspiration—affect aluminium very slowly, while sulphuretted hydrogen and ammonia exert no influence whatever upon it. No more do the particles of aluminium that may have been dissolved affect the organism.’

Concerning the deportment of aluminium under the influence of fats and fatty acids, *Professor E. D. Donath* of Bruenn writes as follows :

‘It is beyond doubt that fat and fatty acids, even with free access of air, exert almost no influence on aluminium.’

He also considers that the extremely slight action of a few alimentary substances after prolonged exposure may be considered as negligible.

He attributes the unsatisfactory results which instituted a strong prejudice against aluminium dental plates as first tried some forty or fifty years ago, to the great impurity of the metal, and the neglect of precautions now better understood. Referring to the early work of Bean of Baltimore, he says :

‘The procedure of Bean was rather complicated, and was handicapped by the following defect—*viz.*, that only the plate was cast, while the teeth had to be soldered on later. Such plates were soon decomposed in consequence of galvanic currents, which are due to the contact of the aluminium with another metal. On account of this factor the experiences with this metal obtained at that time in America were unfavourable.’

To Sauer of Germany he accords the first procedure of scientific value :

‘He was the first experimenter to cast under pressure by surmounting the moulding pieces of the plate with a column of aluminium as a moulding head. Sauer also

cast the plate directly in union with the teeth, in this manner avoiding the soldering. Various reports concerning the unsatisfactory results obtained with aluminium plates created in Germany a generally unfavourable opinion concerning the value of aluminium. The necessity of doing the casting under pressure led Dr. Carroll of New York to the idea of melting the aluminium in a crucible with a perforated bottom, and forcing the molten metal by means of air pressure through the perforations into the mould. With the cast plates produced under such pressure, partly favourable results were obtained. The result was still unfavourable, however, for the new material.'

Concurrently with the casting process, Suerson was the first to make really practical experiments with the method of combining either swaged or cast metal with vulcanite. And although little success was attained at the time, it was on the plan of Suerson that the essayist considers the best results are now to be had. He continues :

'After a perusal of the literature at hand treating of this subject, in almost all the different treatises I have failed to find that strictly scientific methods have been followed. Personally, I have employed aluminium in practice since 1893, and never have had to register lack of success that could have thrown discredit upon this material. Pure aluminium should be used. Aluminium, in my opinion, will never displace gold in dentistry, any more than it will supplant iron in other industries ; it is sufficient that it helps to limit the use of caoutchouc, which in many cases is destructive both to the teeth and the gums. To every dentist the disadvantages to which caoutchouc in most of the cases subjects the bearer are familiar ; for this reason I may dispense with a discussion of that phase of the subject.'

The author's own account of his procedure is too long to quote in full, but we will endeavour to give the substance of it, using, when suitable, his own words.

He strongly emphasizes the supreme importance of metal which is quite pure, and also of the 'hard' variety. Too soft an aluminium cannot be strengthened after working, the hardness being produced by a tempering process of some delicacy. In this state it possesses considerable elasticity. This condition it loses by too high or prolonged heating, not exceeding a very dull red, cooling slowly. This may be repeatedly required if worked cold in swaging, though, as we stated in the last edition on a good authority, if at a temperature of about  $120^{\circ}\text{C}$ ., it can be better worked without becoming intractable. The author is in contradiction to our statement last year that the plate could be made red hot and cooled in water. [So many contradictory assertions have been made about this metal that it is difficult to collate or reconcile them.—ED.] The author, indeed, specifically states slow cooling to be so important that :

'Otherwise, instead of its merits, aluminium will exhibit a multitude of demerits, as by overheating, as well as by too rapid cooling, it becomes soft and brittle and often breaks. All impurities adhering to the aluminium after rolling or stamping should be carefully removed, otherwise they will afford favourable points for corrosion by all kinds of chemical reagents.'

He prefers a model of Spence metal instead of plaster from the impression, and a duplicate when possible to be also made of this. The plate should never be of less than 0.7 millimetres in thickness, and this only for whole upper plates ; for partial and lower dentures it should be at least 1 millimetre thick.

Respecting the highly important matter of how best to prepare the plate for attaching the rubber, he says :

‘At present I work exclusively in pursuance of a procedure in which, by the picking out of barbed hooks on the plate, the teeth are fastened by means of caoutchouc. Many are the sins of practitioners in the point of fastenings, some of them perforating the aluminium from all corners and angles. They seem to place the principal value in as many fastenings as possible, lest the caoutchouc jump off from the aluminium; thus they do not appreciate the fact that the base-plate—in this case the aluminium—during mastication has to withstand the greatest resistance, and therefore should not be weakened immoderately.’

He considers that any perforation of the plate, or attempt to use screw holdfasts, only weaken it, and that no rubber should show upon the palatal side. In roughening his method is, while the plate is steadied on the model, to carefully mark the area of attachment, and with a pointed graver, especially along the outlines, to pick up all over it small barbed hooks in every direction. He discusses many other methods in use, but thinks them inferior. For perfect adhesion every trace of wax, oil, or other film must be removed from the aluminium by benzene or chloroform, etc., and then the surface carefully painted with a rubber solution, and allowed to dry. He advises a high polish to both sides of the plate, but mentions that the beautiful dull-white surface sometimes insisted upon is obtained by boiling for a short time in soda solution. This, however, he condemns as prejudicial, and in any case should be at least partially done before vulcanization. On the long-vexed question of a solder for aluminium, he says :

‘Whether in the future a method of soldering aluminium will be discovered or not may nowadays be considered as a matter of indifference to the profession, since we possess in the aluminium-caoutchouc plates a substitute,



one better than which we could not desire. Therefore, let us energetically combat the old prejudice still surviving with many dentists against the practical application of aluminium. Though some time ago aluminium was not able to resist the fluids in the buccal cavity, and as a consequence the metal often after short use was perforated like a sieve, now we know the cause of the trouble; and we know that pure aluminium properly treated, using all necessary precautions, will do excellent service in the buccal cavity.'

Beautiful dentures have been made by attaching teeth with either celluloid or vulcanite, but durability is limited by the great difference in the coefficients of expansion between the metal and rubber or cellulose. This is less marked in the impure aluminium, or alloys with slight proportions of silver and copper. Satisfactory results have been reported with swaged aluminium plates heavily gilt; but we understand this is done on a preliminary plating with copper and silver by a complicated process. Plates so made are stated by Essig, in the latest edition of his 'Metallurgy,' to wear well for several years, but soon show evidence of the disintegrating effects of oral fluids and thermal changes. Difficult as the soldering of aluminium with itself is, the attachment of plate teeth by soldering to platinum pins or backings seems even more impracticable. On the whole, for the construction of economical temporary metal base plates, the use of one of the copper alloys, which can be easily soldered and gilt, seems in every way more desirable. Many useful articles, such as impression trays, etc., are conveniently made of the pure metal, and some account of recent attempts at soldering may be allowable. The usual fluxes of hard or soft soldering are useless, and have been replaced experimentally with paraffin wax, chloride of silver, and many other things. It is said that ordinary fine silver or gold

solder may be used with success, if finely-powdered silver chloride is spread and fused upon the perfectly fresh, clean surfaces to be united, whereby they are coated with silver; and that with this method good special solders are:

*Richards' Solder.*

Aluminium	-	-	-	2.4 per cent.
Tin	-	-	-	71.2 „
Zinc	-	-	-	26.2 „
Phosphorus	-	-	-	0.2 „

or—

*Thowles' Solder.*

Aluminium	-	-	-	2.4 per cent.
Silver	-	-	-	5.88 „
Tin	-	-	-	64.64 „
Zinc	-	-	-	27.00 „

There are innumerable patented variations upon these formulæ, and for cleaning and preparing the surfaces have been recommended dilute solutions of sodium hydroxide, potassium cyanide, and benzine.

A simple one, according to the *Aluminium World*, is:

Block-tin	-	-	-	28 parts
Phosphor-tin	-	-	-	3.5 „

The phosphor-tin should contain 10 per cent. of phosphorus. But the important element is the technique of the operation. The portions to be soldered must be at a high temperature, as the conductivity of the metal is a great difficulty. The areas must be scraped and cleaned as above described, and while the melted solder is being applied with a copper or aluminium 'bit,' the place must be scratched with a steel wire brush, and the portions rapidly brought into intimate contact.

Solders to be used in the mouth must, however, be more

largely composed of the noble metals than the above alloys, two recommended by Schlosser being :

Gold	-	-	-	-	55.5 per cent.
Copper	-	-	-	-	11.1 „
Silver	-	-	-	-	11.1 „
Aluminium	-	-	-	-	22.3 „

or—

Gold	-	-	-	-	19.9 per cent.
Platinum	-	-	-	-	0.7 „
Silver	-	-	-	-	13.2 „
Aluminium	-	-	-	-	66.2 „

the latter giving the best results in withstanding discoloration, although the most difficult to work.

In use for cast dentures, there is considerable contraction, so that its employment with either diatoric (pinless) teeth or with gum blocks is attended with great danger ; but with plain pin teeth it may be used safely if care be taken that the wax model and the resulting cast does not encroach too much upon the necks of the porcelain teeth or overlap any portion of them. Small quantities of either copper or magnesium, or both, control the contraction to a certain extent ; and in closed moulds, at a high temperature and pressure, thin upper dentures of fine, close-grained castings have been obtained, in which the contraction was small, and, probably as counteracting the expansion of plaster impressions and models, are stated to have secured very good fits. For lower dentures there is, of course, absent the advantage of weight, which is claimed for the heavier Weston's or Blandy's 'cheoplastic' castings. In thick inferior cases, also, the contraction is greater. For this purpose, Dr. Carroll uses the following alloy :

Aluminium	-	-	-	-	93 parts
Silver	-	-	-	-	9 „
Copper	-	-	-	-	1 part

claiming lower fusibility, greater fluidity, and less contraction on cooling.

For strengthening vulcanite dentures, although perforated aluminium plate or other forms of it may be used successfully without affecting vulcanization or much discoloration on exposure of outcropping metal, it, nevertheless, has not the rigidity and other desirable qualities of either nickel or the platinum-iridium alloys. *See also Alloys.*

**Aluminium, Electro-plating upon.** Very indifferent results have hitherto been produced by attempts to deposit adherent coats upon aluminium for preventing oxidation, etc. This, of course, is caused by the facility with which a very slight layer of alumina forms upon its surface, the merest trace of which is fatal to a really close and lasting deposit. It seems by elaborate precautions a good deposit of copper can be obtained, upon which gold or other metals may be plated.

*A. Lodyguine*, in *Amer. Electrochem. Soc. Trans.* 7, 1905, pp. 153-156, found that the formation of any compound of aluminium on the surface of the plate must be avoided. The presence of the slightest traces of alumina, chloride, or sulphate of aluminium, aluminates or alums, absolutely ruined the success of the experiment. Any electrolyte that attacks the aluminium must therefore be discarded. He succeeded in depositing copper by the following process: An anode of pure copper and an electrolyte of water with a few drops of sulphuric acid was used. After the current had been passed for some time, some  $\text{CuSO}_4$  was formed, and from this copper was deposited. The plate was taken out after thirty minutes and well washed in water, then in a solution of  $\text{HCl}$ , next in  $\text{NaOH}$  solution, and finally in water. The same operation was repeated several times, until the plate was evenly coated with copper. On the coppered plate antimony was deposited

from a concentrated solution of  $\text{Na}_2\text{S}$ . Lumps of trisulphide of antimony were placed in a porous pot with a carbon anode. The cell was filled with the electrolyte. On the coppered aluminium kathodes the antimony adheres firmly, and the deposit can be continued as long as the monosulphide of sodium is not converted into polysulphides. A current density of 0.0013 ampère per square inch with 1 to 1.5 volts was found to be satisfactory.

A thoroughly good copper deposit would seem to open the way to satisfactory soldering of aluminium parts, providing the entire joint and any exposed copper is subsequently electro-plated with a noble metal.

**Aluminium lining** for vulcanite dentures, if durable and readily applied, should have advantages of high thermal conductivity without weight. *W. T. Magill, U.S.A.*, packs case with parting fabric, and before final closing applies the liquid or 'paint' aluminium preparation on surface of rubber instead of model, claiming superior results.

The now largely used 'paint' (which we understand is a suspension of finely subdivided aluminium in some emulsifying medium dissolved in acetone), if sufficiently thick and continuous on the surface of vulcanized rubber, is of such good electric conductivity that fairly adherent gold-plating may be done upon it. The unsightly gray colour which the plain aluminium paint rapidly assumes may thus be easily substituted for an unalterable burnished, pure gold lining.

As a 'polishing plate' in vulcanizing, aluminium has no advantage over pure tin or the 'white metal' generally used.

A very curious use of aluminium in fine powder for preventing, or in large measure controlling, the shrinkage of rubber with which it is mixed intimately before vulcanization, is reported by *Stewart J. Spence (D. Cos., XLVII., No. 6, 668)*. After recounting many experiments in an interesting article, the writer naturally turned to

the metals, and he found that pulverized aluminium when mixed with vulcanizable rubber in the proportion of 25 per cent. by weight of aluminium will not only entirely prevent contraction but also porosity, and with weighted rubber only  $12\frac{1}{2}$  per cent. aluminium is required. The rubber is reduced to a soft pulp by chloroform, when the powdered aluminium is crushed into it by means of mortar and pestle. In a few minutes a soft, doughy mass is formed, which may be kneaded for a few minutes longer, by which time a fairly thorough mixing has been accomplished. It is then spread out for an hour or two to allow evaporation of the chloroform, which would retard vulcanization. It is well to employ no more chloroform than is necessary, as experiments seem to indicate that an excess makes the rubber vulcanize less hard, even after abundant time for evaporation. As, however, it is a little trouble to make the mixture, it is to be hoped some manufacturer of dental rubber will consider it worth while to put this material on the market.

There is always some reduction of the dome of a plate by areal contraction, because the expansion of a model is directed laterally, while the contraction of a vulcanite palate is not quite lateral, but directed downward to the degree that the rubber over the ridge is lower than that at the summit of the dome. The use of a non-expanding and sufficiently hard-setting plaster eliminates all these evils, so that together with a non-contracting rubber for thick plates an almost *exact* fit can be obtained.

**Alumnol.** An alum salt of naphthol sulphonic acid as a white powder, in 1 to 2 per cent. solution in water, alcohol, or glycerine, is a powerful gargle and wash in purulent discharges, and has been recommended in pyorrhœa alveolaris.

**Alveolo-Dental Periosteum** is the systematic name suggested by Hopewell-Smith for the root membrane variously



termed 'dental periosteum,' 'alveolo-dental ligament,' 'peridontium,' etc., but he uses for convenience in his work on patho-histology the term 'periodontal membrane.'

**Alypin.** This body is a new local anæsthetic. It is a hydrochloric acid salt of benzoyl-tetramethyl-diamino-ethyl-dimethyl-carbinol. It forms a white crystalline powder, melting at 169°, and is easily soluble in water. It is a very powerful anæsthetic.

**Amalgam.** There is a marked tendency among good operators, whose skill in the use of such filling materials as gold and porcelain is unquestioned, to reinstate the once well-abused 'metallic disgrace' into a respectable position among legitimate resources. It is indeed admitted that in many cases broken-down posterior teeth may be saved by suitable amalgam contours, with less trouble to the patient than the more showy shells and crowns. Some attempt at a systematic estimate by collective statistics has been made in the United States to ascertain the general average of fillings made with different materials in ordinary good practices. But the barest guess has only been possible. *H. C. Spencer (D. Cos., XLVII., p. 1332)* says:

'Notwithstanding the fact that the subject of porcelain filling is occupying so large a portion of current dental literature (and again it is well that it should do so), we must not lose sight of the fact that the majority of dental operations performed throughout the land are neither porcelain nor gold, but amalgam. The exact ratio that amalgam fillings bear to all others inserted it is impossible to tell. Dr. Jarvie has recently said that probably they represent 75 per cent. of all fillings introduced throughout the country. This statement was substantiated by Dr. Kirk. To make a conservative estimate, it is safe to say that amalgam is used in the majority of fillings. It thus becomes our duty, no matter whether such filling

material occupies an important part or no part whatever in our individual practices, to consider the introduction of that material on a scientific basis of as much importance as any operation which comes within our province. That this has never received the general consideration which its importance merits is woefully apparent. That if we are endowed with the proper professional spirit we must consider the possibility of perfecting that which may represent 75 per cent. of dental operations (even though it may have no direct bearing upon our individual practice), leaves no chance for argument.'

And as recently as the above quotation, *Joseph Head* (*D. Cos.*, *XLVII.*, p. 1324), discussing the relative values of materials, after mentioning the disadvantages of some, says:

'These facts alone would account for the present-day usefulness and popularity of amalgam. Amalgam can be more readily adjusted to the cavity margins than can gold. It is true that amalgam warps and bulges under continued stress, but even with this disadvantage partly overcome by the antiseptic action of oxidization, taking all the fillings put in by the profession as an average, in my opinion the amalgam fillings preserve more teeth from actual decay than does gold. Amalgam is used with fair prospects of success in cavities where gold would be but a desperate remedy.

'Let me refer to a case in my own practice that I believe is typical. A patient came to me with all the crown cavities of her molars filled. Half of them were filled with gold and half were filled with amalgam. All the amalgam fillings were doing good service, without a sign of marginal decay. All of the gold fillings were defective, with rapidly breaking-down edges. On inquiry the patient explained that the amalgam had been put in about ten years previously by her dentist because the teeth

were too sensitive to bear the hammering, but within the last three years he had replaced some of them with gold as a more permanent filling. I replaced the defective gold fillings with adhesive gold fillings but since the amalgam fillings had been giving good service for ten years, I allowed them to remain as they were.'

These pronouncements, and numberless others, by observing and skilful men, seem to justify our remarks in the last year's ANNUAL that as a filling material amalgam has not been seriously displaced by the triumphant progress effected in porcelain work, as the sale and use of alloys for admixture with mercury seems as great as ever. But there has been no recent work of importance towards the improvement of the material itself. Much has been said upon the technique of its manipulation, which may be usefully summarized. Practically, there are two widely-differing methods of use advocated. In one the proportions of alloy and mercury are carefully determined by either weighing or measurement, and then as rapidly as possible after admixture small portions are carried by comparatively small-pointed instruments for thorough adjustment and adaptation to all parts of the cavity. In this the use of mallet force is advised, where applicable, by some operators. The theory of this method is that by crystallization of the whole mass *in situ*, and in determined constitution without excess of mercury, alteration of shape is entirely avoided. By the other method, promulgated by the late Dr. Bonwill, a soft mix, with excess of mercury, is introduced in large portions, and then powerfully compressed under comparatively broad surfaces of layers or pads of suitable substances, by which as much of the mercurial excess as possible is expressed and removed during the process of filling.

This method has been recently strongly advocated by Harry Baldwin in the course of a paper read at

Aberdeen (see *B. D. J.*, XXV., p. 781), and was clearly differentiated in the discussion which ensued from the methods of Kirby and Foster Flagg, with which it has been often confounded. These latter, somewhat similar in procedure, depend upon commencing a filling with a softer mix, and finishing with a harder or dryer one, by which means the excess of mercury in the deeper parts is sought to be absorbed in the later additions. Mr. Kirby having shown long ago the form changes resulting from unequal distribution of mercury, Baldwin points out that Kirby's or Flagg's methods do not so effectively secure a homogeneous distribution as the squeezing or compression of the whole mass before crystallization, 'as a wet sponge is pressed in the hand.' Some misapprehension has undoubtedly occurred by the description of the use of bibulous paper or such 'absorbents' for effecting pressure over a large area, because, obviously, mercury which does not physically 'wet' paper as water or similar liquids do is not 'absorbed' in the sense that other fluids are. But excess of mercury undoubtedly enters into porous textiles, or such materials as amadou, wash-leather, etc., and passes through them when pressure is made by cotton swabs, etc. True absorbents of mercury, such as folds of gold or tin-foil, were largely used by many experienced operators, this being the routine and favourite method, for instance, of the late Dr. Coffin for over thirty years—in fact, since he was instructed in the use of amalgam for high-class work by one of its pioneers, the late Dr. Townsend, half a century ago. Many large fillings of a simple silver—tin alloy inserted by this method some decades ago—show no change of shape or other deterioration. This was an anticipation of his method which Bonwill admitted, but he strongly contended that with the use of modern alloys containing gold, etc., in

appreciable quantities, the employment of gold or tin-foil in condensation was greatly inferior to his method with indifferent substances such as absorbent paper. It may be noted as a practical point that when foils are used for hardening or condensing amalgams, the instruments with soft rubber tips made for inlay matrix work, etc., are extremely convenient.

The use of amalgam for other purposes than ordinary fillings has received some attention. For the temporary repair of plates, or even the permanent restoration of defects in bridge-work, the attachment of porcelain facings, a quick-setting amalgam has been repeatedly reported as serving good purpose. No true adhesion can be expected in such work, though amalgams made of bismuth and antimony have a pseudo-adhesiveness which is not permanent, and they are unsuitable in the mouth.

Amalgam in the setting of porcelain crowns has recently been advocated by Dr. Leon Williams in connection with certain special forms of crown devised by him somewhat after the old method of the original hollow Bonwill crown, but apparently with a greater chance of success than attended the latter. Very expert and accurate manipulation is required in the use of amalgam for crown setting—so much so that it is doubtful whether it presents sufficient advantages to supersede cement, or the oxy zinc, or copper phosphates.

In the repair of broken or imperfect amalgam fillings, it is said that the application of phosphoric acid solution to the freshened clean surface of an old filling insures a perfect union of fresh added amalgam.

Amalgam is increasingly used in the construction of very satisfactory and quickly-made banded crowns. For these it is not necessary to devitalize or encroach upon the pulp if healthy, only sufficient of the contour of a broken-down tooth being removed to allow of a

tightly-fitting broad band being perfectly adapted to the neck.

If devitalized, it is well to cement a short pin into one of the root canals : and the best procedure in such a case is to leave this operation until after the band is in place. The band may advantageously be seamless and quite thin, as its function is mainly that of a permanent structural matrix. Some operators have used the platinum gold combination metal, but all platinum is obviously preferable. Unless it can be shaped to a good contour touch with proximate tooth surfaces, it should be narrowed to allow contour building of the amalgam at interstitial points. The band being in position and cut down to clear the bite, a roughened pin of almost any metal may be fitted in a patent canal, if there be one, adjusted in length to the articulation, and fixed with cement. Amalgam may be immediately filled in, preferably before the fixing cement has set, as there is good evidence of a strong union between amalgam and the adhesive varieties of cement ; besides which, the pressure of the amalgam in a large mass is the best piston for securely packing the cement. Of course, it is assumed that the distal end of root canals have been previously filled to close the apical foramen. It is not difficult, upon this foundation, to build up and contour a crown of amalgam which, if the band be fairly broad, will have considerable security and permanence. In those cases of living but broken-down teeth to be capped alive, the coned portion of the remaining crown should have a few retaining pits or cuts made in it, if not of retentive form ; and it is well to dry this, swab with phosphoric acid, dry again, and smear with a thin mix of an adhesive cement before filling in immediately with amalgam. No claims of superiority for such banded amalgam crowns are made over the shell crowns and caps,



except the facility and rapidity with which they may be made and fixed in one short sitting. See also Crowns.

The almost invariable staining of the enamel walls in simple amalgam fillings, and usually attributed to slight leakage at margins, has recently been shown to be probably produced by moisture from within infiltrating the dentine or uncalcified portion of the enamel, thus forming dark salts with the metal, as demonstrated by Mr. Caush at the Brighton Section of the Southern Counties Branch of the British Dental Association (see *B. D. J.*, XXVI., January 15). This can be usually avoided by lining the cavity with a light-coloured adhesive cement first; and special claims for a particular technique of doing this, recommended to be used in all cases of amalgam filling, were strongly advocated in the paper by Mr. Baldwin, referred to above. Baldwin uses an adhesive cement, of which the best he has found to be Harvard, and placing a large quantity of this in the cavity, he practically adapts it by following it up while plastic with a large portion of amalgam.

The resulting outcrop of cement is cleared away from the extreme margin of the edges of the cavity, and further amalgam added in excess, applying general pressure for expressing mercury. Very large claims are made for this method of filling, which he calls P.c.A., and which he and others have used almost to the exclusion of plain amalgam for several years. He points out that an adhesive cement is with difficulty absolutely applied and retained against a cavity wall by instruments which adhere to it; that the pressure of amalgam upon it insures perfect adaptation; and he makes the interesting and new observation that plastic adhesive cement and amalgam, without intermixture, adhere so strongly to each other that the resulting joint in experimental cylinders had a strength at least as great

as the cement or amalgam. Although he objected to the term, such fillings may be called amalgam inlays with sealed edges. The greatest satisfaction and confidence in the strength and appearance of this combination filling, which must not be confounded with the mixture of the two materials, is expressed by many experienced and competent operators.

The use of copper amalgam for its supposed therapeutic or germicidal properties seems not so general as formerly, and in deciduous or hopeless young teeth it has been largely replaced by the more easily adaptable copper phosphate cement. For strengthening weak teeth or roots before extraction, the plain copper amalgam, however, is unapproachable.

The various methods of mixing the alloy with mercury for producing amalgam are found to be of some importance as determining the best results. The old-fashioned objectionable palm-of-the-hand mix (which it is not necessary to specifically condemn) is fairly well imitated by a method described by *J. M. Thompson (D. Cos., XLV., p. 833)*, who finds the 'ideal' plan to place the filings and mercury in a soft rubber finger-tip, or 'finger-stall,' which is closed with the fingers of one hand and manipulated by the others. He claims very rapid and satisfactory results, and the plan certainly has the advantage of being aseptic, and preventing oxidation unduly, which most obviously occurs in the 'shaking-tube' method, for instance.

But there are difficulties with this which do not seem to compensate for the slightly longer time taken by the usual trituration in a glass or porcelain mortar. It is singular that some alloys, especially those prepared in fine powder, are so much more difficult to incorporate with mercury than the 'turnings' or 'shavings,' in which form other alloys are put on the market. This

may be overcome to some extent by commencing with the addition to the mercury of a small quantity of the 'shavings' of a good similar alloy first. It is also remarkable that mere shaking in a 'mixing-tube' should cause amalgamation, but the method is open to the grave disadvantage of promoting or allowing great oxidation of the metal, unless the agitation is done with the tube filled with some inert gas, such as nitrogen. The compiler of this work has experimented with what seemed the ideal method of admixture, by submitting the alloy, however comminuted, with mercury, to pressure in a confined space, such as the drilled hole in a steel block, fitted with a piston used in the production of 'pressed alloys.' The difficulties, however, are unexpectedly great in allowing for the escape of air while retaining the mercury. But the experiments have so far shown that great pressure is required to insure amalgamation, and that the resulting mass crystallizes with much greater rapidity than when formed by the ordinary methods of frictional trituration. By placing a considerable excess of mercury in the bottom of the cylindrical cavity, heating the block, placing the filings or shavings of metal on top, and then using pressure by a not too perfectly-fitting piston, amalgamation can be effected with some loss of mercury and thin amalgam. By having the bottom stopped with a tightly-screwed plug, the resulting cylinder of amalgam can with some difficulty be dislodged; but its constitution can only be vaguely estimated or determined by analysis.

When it is desired to mix in accurate proportions, a convenient form of special balance may be used, as shown by *Mr. J. B. Parfitt* at the Odontological Society (*Trans.*, XXXV., p. 64), which may be described as a kind of bent steelyard, of which the two arms are approximately at right angles to one another. It has a fixed

counterpoise, and the lengths of the arms as well as the weight of the scale-pan remaining constant through any series of weighing, it follows that the weight of the substance in the pan will be proportional to the tangent of the angle through which the balance arm has turned to reach its position of equilibrium.

The most expeditious method of using the instrument is to place the mercury in the pan, notice its weight as indicated by the pointer, then add filings until the correct amount is shown on the scale, and transfer mercury and filings from the pan to the mixing tube.

For effecting the same purpose in a different manner, most ingenious instruments were brought forward by *Mr. Walter J. May* (*Trans. Odont. Soc.*, XXXV., p. 206), and now known as Tulloch's Alloy and Mercury Measures, introduced by Andrew Tulloch and Co., Metallurgical Chemists, of Sidcup. The feature of these machines consists in their forming both the permanent storage receptacles and delivery measures of alloy filings and mercury. By a simple adjustment they deliver into a mixing mortar or other receptacle any desired weights in determined proportions in even less time than the materials can be taken from ordinary bottles. The only drawback is that filings and not shaved cuttings of alloy must be used—though for the latter small spoon measures are supplied which enable fixed quantities, said to approach with great accuracy to weighed amounts, to be taken from a bottle—and that they are somewhat expensive; but they appear to be most accurately and durably made, giving quantitative results within the very smallest limits of error.

A use for amalgam has been mentioned in swaging a platinum matrix to the cavity for inlay work. A quick-setting alloy is packed in after the foil has been roughly adapted, around a headed projecting pin or short bent wire.

When set and removed (which the projecting pin or wire conveniently allows to be done), the alloy can be dissolved out by nitric acid.

**Ambidextrousness.** The alleged advantages of this facility, whether congenital or more or less laboriously acquired, is still being discussed in relation to ordinary affairs of life, as well as the application of it in skilled handicrafts and the manipulative demands of many arts and professions. Since our reference to this two years ago, a Society has been founded for the study of the question with a view to its general inclusion in physical education. The further discussion since then only confirms the opinion we then expressed, that you cannot have it both ways—*i.e.*, a doubled facility is only possible at some sacrifice of the highest specialization. Eminent anthropologists appear to have considered it as merely a matter of education properly directed, regardless of obvious physiological considerations. Attention has recently been drawn by more than one instructor of Operative Dental Surgery to the supposed benefit of right and left handed equality, leading to some discussion in the Societies and Journals of the United States. For instance, *F. H. Metcalf*, in the *Pacific Dental Gazette* (see *B. J. D. Sci.*, XLVI., p. 177), declares that there are no corresponding disadvantages. This view appears to overlook the facts of the asymmetrical innervation and cerebral control of the two halves of the body. It cannot well be denied that the specialization of functions which makes for efficiency should be expected to apply in the case of the elaborate co-ordination of distant groups of muscles from centres in different lobes. An interesting personal contribution to the question is made by the late *Thomas Fletcher* (*B. J. D. Sci.*, XLVI., p. 208), who says :

‘ This power is not to be acquired by all, except to an extremely limited extent ; practice will improve it, but the power of true ambidextrousness is born with its

possessor, and is extremely rare. I have been, until one arm was injured by an accident, perhaps above the average in this respect ; but there was always a choice between the hands, the left being the best for heavier, slow work, the right for precision and delicate manipulation. Further than this, although able to use most instruments freely and well with either hand, I soon found that a very large proportion were made by right-handed men for use with the right hand only, and that, however convenient it might be, their use with the left hand was an impossibility, and each hand had to be trained and used for its own work almost exclusively, unless the tools and instruments were made specially. I have myself had a set of forceps made for use with the left hand for a left-handed operator.'

**Ameloblastic Membrane.** The designation 'inner ameloblastic membrane' has been given by Dr. Leon Williams to the structure previously described by Huxley and Raschkow as *membrana preformativa*.

**American Dental Colleges.** We published in last year's ANNUAL (pp. 33 to 38) a number of selected extracts from the Dental Press of the United States dealing with the transatlantic opinions upon the condition and future developments of the teaching institutions of the country. We need now but quote a few, preferably of those which have been more or less realized. The whole question will doubtless be profoundly probed in the very near future by the deliberations of the now re-organized International Dental Federation, especially since the adhesion last year of this country to the organization will greatly modify and guide the deliberations of the Educational Commission, which is the most important element of the body.

The present most important question is the modification of the minimum length of the professional curriculum as formerly fixed by the National Association of Dental Faculties at a four years' course. Apparently, this was



precipitated by the action of Harvard University School in increasing the length of the yearly collegiate terms, while reducing the minimum course to three years, and by a proposition to inaugurate a stricter entrance or preliminary examination in general education. This led to the withdrawal of Harvard from the Association, and the following of other Dental Schools in the same direction. There ensued immediately a conflict with the National Dental Examiners' Association, which at St. Louis, in August, passed resolutions to the effect that they would not examine a candidate for a license to practice who had not taken a four years' course. The immediate effect and present outcome of this deadlock appears to be a triumph for the reactionary policy of the Faculties Association, as, almost without exception, the colleges have adopted the three years' course. Considerable dissatisfaction at this is candidly expressed by unbiassed and independent opinion in the States, though an attempt is made to minimize the real proportions of a retrograde step. For instance, the *Pacific Dental Gazette* says:

'As compared with the "four years of six months" course, there is a decided gain in actual teaching time, and but a little loss of time as compared with the "four years of seven months" course, while compared with the old "three years of seven months" course there is the decided gain of half a term of actual teaching time.

'So, taking into consideration the fact that the efforts of those who were apparently determined to secure a shorter term and an increased number of them, for reasons too obvious to need explanation, were frustrated, and that the National Association still exists, we feel that this action is really another progressive step.

'We feel that the time will yet come when dental students will be selected from a class of men and women who enter college well equipped with a preliminary

education, and an understanding that they are there for a greater purpose than simply to secure a degree, who realize the value of time and the necessity for labour, and will gladly welcome every additional hour for work a change in the length of course or term may give them.'

On the other hand, the *Dental Register* (lviii., p. 478) says:

'The National Examiners' Association is an organization of intelligent dentists, representing the people and the laws made for their protection, unprejudiced by association of any sort with the business of educating dentists, and ought, therefore, to be peculiarly qualified to pass judgment on the matter of the quantity as well as the quality of training needed to entitle one to offer his services to the public with legal endorsement. No college in the United States can, at present, qualify under this standard. Some schools have twenty-seven months of instruction and the high-school requirement for admission. It means a four-year course of seven months. The examiners have established standards of reputability before, but always in harmony with action by the Faculties Association. It remains to be seen what the result of this action will be. There can be no doubt that, should the Examiners' Association adopt a reasonable standard, and be able to put it into practice in a considerable majority of the States, the colleges would very soon come to it. It would also be a powerful influence in shaping future legislation, to the extent of producing the long-desired uniformity in legislation; thus furnishing a practicable basis for inter-State comity.'

The *Dominion Dental Journal*, XVI., 483, 484, comments as follows:

'The only schools in America that are complying with the requirements demanded by the National Dental Examiners' Association, as to both time and preliminary requirements,

are those in Canada. So much for the United States. In Canada the course will continue to be four years, and matriculation in the faculty of Arts the standard to commence. A Canadian Dental Council has been organized, which will grant a certificate to only those who are graduates of Canadian schools. This certificate will permit the holder to obtain a license in any part of Canada without further examination, to take effect January, 1905.'

The best professional opinion in the United States, however, is an uncompromising condemnation of the present situation, as voiced in an editorial in the *Dental Cosmos* (xlvi., p. 671), in which the following occurs:

'We are in favour of a four years' course of sessions not less in length than those provided for under the present three years' rule. We have heretofore recorded the opinion that the salvation of higher dental education must come through efficient legislation which will afford practical protection to the institutions, which would willingly advance the standards if it were not for the competition for which defective standards of State dental legislation are directly responsible.

'The Association of Dental Faculties has demonstrated practically that it is powerless to advance educational standards beyond the limits of existing professional sentiment. When the dental profession really wants higher dental education, and the consequent elevation of its standards to a plane more in harmony with those of the professions called "learned," it may achieve its desire through the enactment of State laws that will specify and safeguard those standards; but not otherwise, unless it will so endow a Dental College as to place it above dependence upon the fees of students to meet its running expenses.'

Qualification for practice in the United States is determined irrespective of academic degrees or diplomas by

what is practically a 'one portal' system for each State; that is to say, by a license granted by a legal Board on general considerations of experience, character, and an examination, the details of which vary in different States. Private pupilage or apprenticeship is not recognised. Inter-State uniformity and reciprocity has long been a burning and much-discussed question, the first really practical step towards which was taken in 1904 by a formal agreement between New York and Pennsylvania. Full details of the articles of the arrangement between the Dental Examining Boards of these States, and their formal ratification, are given in the *Dental Cosmos*, XLV., p. 670, which comments as follows:

'We trust that this practical realization of inter-State reciprocity may serve as a stimulus to an extension of the movement among all States having similar dental laws, and that by further adjustment among groups of States a general reciprocity may eventually be established.'

Since then several other arrangements have been made for inter-state reciprocity.

In 1901 it was agreed that graduates of the recognised dental schools of Great Britain, France, Germany, Austria, Switzerland, and Sweden should be accepted as students, and accorded one year's advanced standing. The Australian College of Dentistry at Melbourne has since also been recognised. Quite recently there has been a strong movement to require in addition certificates or proof of experience or knowledge, on the ground that European instruction in practical and technical subjects was in some cases inferior.

Already in New York State a graduate from an English or European dental qualifying body cannot enter the Dental Schools enumerated below in that State unless he has a higher qualification as to preliminary education than is at present recognised in Great Britain.

Advisers have been appointed in many cities of Europe for the purpose of assisting European students or practitioners proposing to obtain American degrees.

The following are those American Dental Colleges at present in good standing :

Alabama -	-	Birmingham -	Birmingham Dental College.
California	-	San Francisco -	University of California, College of Dentistry.
"	-	" "	Dental Department, College of Physicians and Surgeons.
"	-	Los Angeles -	College of Dentistry, University of Southern California.
Colorado -	-	Denver -	Colorado College of Dental Surgery.
District of Columbia	-	Washington -	Dental Department, Columbian University.
"	"	"	Georgetown University, Dental Department.
"	"	"	Dental Department of Howard University.
"	"	"	Dental Department of National University.
Georgia -	-	Atlanta -	Atlanta Dental College.
"	-	"	Southern Dental College.
Illinois -	-	Chicago -	Chicago College of Dental Surgery.
"	-	"	North-Western University, Dental School.
"	-	"	College of Dentistry, University of Illinois.
Indiana -	-	Indianapolis -	Indiana Dental College.
"	-	"	Central College of Dentistry.
Iowa -	-	Iowa City -	University of Iowa, College of Dentistry.
"	-	Keokuk -	Keokuk Dental College, Department of Keokuk Medical College.
Kentucky	-	Louisville	Louisville College of Dentistry, Department of Central University of Kentucky.
Louisiana	-	New Orleans	New Orleans College of Dentistry.
Maryland	-	Baltimore	Baltimore College of Dental Surgery.
"	-	"	Baltimore Medical College, Dental Department.
"	-	"	Dental Department, University of Maryland.
Massachusetts -	-	Boston -	Dental School of Harvard University.

Massachusetts	-	Boston	-	Tuft's College Dental School.
Michigan	-	Ann Arbor	-	Dental College of the University of Michigan.
"	-	Detroit	-	Dental Department, Detroit Medical College.
Minnesota	-	Minneapolis	-	College of Dentistry, Department of Medicine, University of Minnesota.
Missouri	-	Kansas City	-	Kansas City Dental College.
"	-	"	-	Western Dental College.
"	-	St. Louis	-	Missouri Dental College, Dental Department of Washington University.
"	-	St. Louis	-	Marion-Sims Dental College.
Nebraska	-	Omaha	-	Dental Department, University of Omaha.
New York	-	Buffalo	-	University of Buffalo, Dental Department.
New York	-	New York	-	New York College of Dentistry.
"	-	"	-	New York Dental School.
Ohio	-	Cincinnati	-	Cincinnati College of Dental Surgery.
"	-	"	-	Ohio College of Dental Surgery.
"	-	Cleveland	-	Western Reserve University, Dental Department.
"	-	Columbus	-	Ohio Medical University, Dental Department.
Oregon	-	Portland	-	North Pacific Dental College.
Pennsylvania	-	Philadelphia	-	Pennsylvania College of Dental Surgery.
"	-	"	-	Philadelphia Dental College.
"	-	"	-	Dental Department, University of Pennsylvania.
"	-	"	-	Medico-Chirurgical College of Philadelphia, Department of Dentistry.
"	-	Pittsburg	-	Pittsburg Dental College, Department Western University of Pennsylvania.
Tennessee	-	Nashville	-	School of Dentistry of Meharry Medical College, Department Central Tennessee College.
"	-	"	-	Department of Dentistry of Vanderbilt University.
"	-	"	-	Dental Department, University of Tennessee
Virginia	-	Richmond	-	University College of Medicine and Surgery, Dental Department.
Wisconsin	-	Milwaukee	-	Milwaukee Medical College, Dental Department.
Canada	-	Toronto	-	Royal College of Dental Surgeons of Ontario.



The representatives appointed to accord assistance to those desiring information about American dental education are the following :

Great Britain	-	Wm. Mitchell	-	39, Upper Brook Street, London, England.
"	"	-	W. E. Royce	- 2, Lonsdale Gardens, Tunbridge Wells, Eng.
"	"	-	William L. Croll	- 14, Lower Berkeley Street, London, Eng.
Holland and Bel- gium		J. E. Grevers	-	13, Oude Turfmarkt, Amsterdam, Holland,
"	"	Ed. Rosenthal	-	19, Boul. du Regent. Brussels, Belgium.
"	"	C. Vander Hoeven	-	The Hague.
Denmark, Sweden, and Norway		Elof Förberg	-	Sturegatan 24, Stock- holm, Sweden.
"	"	S. S. Andersen	-	Christiania, Norway.
"	"	L. P. Vorslund-Kjaer	-	Copenhagen, Denmark.
Russia	-	-	H. V. Wollison	- 10, Quai de l'Amarante, St. Petersburg, Russia.
"	-	-	Theo. Weber	- Helsingfors, Finland.
"	-	-	Geo. Th. Berger	- St. Petersburg, Russia.
Germany	-	-	W. D. Miller	- Königsgrätzer strasse, 140, Berlin, Germany.
"	-	-	C. F. W. Bödecker	- 54, Unter den Linden, Berlin, Germany.
"	-	-	Friedrich Hesse	- Goethe Strasse 6, Leip- sic, Germany.
Austria and Hun- gary		Otto Szigmondi, M.D., Ch.D.		Vienna 1, Schmerling- platz 2, Austria.
"	"	Rudolf Weiser, M.D., Ch.D.		Vienna IX, Frankgasse 2, Austria.
"	"	Jos. Arkövy, M.D., Ch.D.		Budapest, Vaczi-utca 65, Hungary.
Italy and Greece	-	Albert T. Webb	-	87, Via Nazionale, Rome, Italy.
"	"	-	Tullio Avanzi	- ———
"	"	-	Henry F. Heims	- 3, Via Borgognissanti, Florence, Italy.
France	-	-	J. H. Spaulding	- 39, Boul. Malesherbes, Paris, France.
"	-	-	George B. Hayes	- 17, Avenue de l'Opera, Paris, France.
"	-	-	G. A. Roussell	- 101, Avenue des Champs Elysées, Paris, France.
Spain and Portugal		Florestan Aguilar	-	Alcala, 72D, Madrid, Spain.
"	"	R. H. Portuondo	-	Paseo de Recoletos 3, Madrid, Spain.
"	"	Moses Gonsalvez	-	Lisbon, Portugal.

Switzerland and Turkey	L. C. Bryan	-	-	1, St. Alban Anlage, Basel, Switzerland.
" "	Theo. Frick	-	-	14, Tonhallenstrasse, Zurich, Switzerland.
" "	Paul J. Guye	-	-	12, Rue de Candolle, Geneva, Switzerland.
Japan, China, and India	J. Ward Hall	-	-	Shanghai, China.
" "	J. H. Noble	-	-	Hong Kong, China.
Australia and New Zealand	Alfred Burne	-	-	1, Lyon Terrace, Liverpool Street, Sidney.
" "	A. P. Merrill	-	-	52, Collins Street, Melbourne.
" "	Herbert Cox	-	-	216, Queen Street, Auckland, New Zealand.
Cuba and West India Islands	A. E. Mascort	-	-	Havana, Cuba.
Mexico and Central America	H. W. F. Büttner	-	-	City of Mexico.
" "	J. W. Purnell	-	-	Merida, Yucatan.
" "	J. Hunter	-	-	Puerto Cortez, Honduras.
Venezuela, Columbia, and Ecuador	Manuel V. Toledo	-	-	Caracas, Venezuela.
" "	J. R. Martinez	-	-	Guayaquil, Ecuador.
Peru, Bolivia, and Chili	Charles B. Davies	-	-	49, Plaza Anibal Pintor, Valparaiso, Chili.
" "	S. R. Salazar	-	-	Lima, Peru.
" "	C. W. Sparrock	-	-	Lima, Peru.
Brazil and Guiana	J. L. Fordham	-	-	Rio de Janeiro, Brazil.
" "	Julius Weinburger	-	-	Para, Brazil.
Argentine, Paraguay, & Uruguay	J. S. Burnett	-	-	Salto, Uruguay.
" "	J. C. Macartney	-	-	Montevideo, Uruguay.

Largely due to the indignation aroused by the report of Consul Worman, of Munich, Germany, and others as to the result of inquiries into alleged wide dissemination abroad by purchase or merely nominal study of spurious 'diplomas,' no less than 5,500 dollars were appropriated by the National Dental Association, the State Dental Society of Illinois, and the Association of Faculties, for investigating into and taking action respecting fraudulent concerns. Among the happy results of the prosecuting committee have been decisions of the courts closing the doors of such offenders as the German-American Dental College of Chicago.

The Chairman of the Committee makes an appeal to international common-sense and intelligence, and implies that the continuance of the bogus D.D.S. is largely due to foreign ignorance of conditions prevailing in America and to shameless cupidity both at home and abroad. The committee earnestly desire to be informed and furnished with evidence of instances of abuses.

Information may be given to any of the foreign representatives above, or direct to one of the members of the committee, consisting of :

*T. W. Brophy, 126, State Street, Chicago, Ill., U.S.A.*

*J. D. Patterson, Ninth and Walnut Streets, Kansas City, Mo., U.S.A.*

*M. W. Foster, 9, West Franklin Street, Baltimore, Md., U.S.A.*

*Edward C. Kirk, Twelfth and Chestnut Streets, Philadelphia, Penn., U.S.A.*

For other particulars of American Colleges as compared with those of other countries, *see Education.*

**American Dental Journal, The.** *See Journals.*

**American Dental Manufacturing Co., The.** *See Manufacturers, etc.*

**Aminoform**, also known as Formin, Urotropine, is a combination of ammonia and formaldehyde (Hexamethylene-tetramine), said to have useful preservative and antiseptic properties. Being a solid in the form of a granular crystalline powder, it can be safely and conveniently handled ; slightly soluble in alcohol and more so in water, it is worth trying in oral surgery.

**Ammonia** in the mouth as an alkali is, from its extreme causticity, limited to the treatment of nerve-canals under the rubber dam to neutralize the previous application of strong mineral acids in cleansing. It has also been lately recommended in tooth-bleaching processes, and may be used to remove the stain of silver nitrate after conversion into a soluble salt by iodine ; also 'green stain' on teeth, and simple iodine stains on the skin or napkins.

**Ammonia** (household) is a very serviceable routine addition to hard water in washing the operator's hands for removal of all odours and stains of medicaments. A good formula for it is oleic acid 1, S.V.R. 1; mix, and add strong liquid ammonia and distilled water of each 7, shaking well. It is frequently sold also slightly perfumed, lavender being the favourite addition. A few drops of this in the wash-basin is efficacious and harmless to the skin.

**Ammonii Benzoas**, from its extreme solubility in water (1 in 6, cold) as compared with that of benzoic acid (only 1 in 400), or in glycerine (1 in 8) has been used to some extent in compounding empirical mouth-washes and lotions, to be largely diluted for use.

**Ammonii Bi-carbonas** is much preferable to the usual carbonate where a powerful diffusive stimulating antacid is indicated. Soluble 1 in 8 of water.

**Ammonii Bromidum**, in the form of pastilles or lozenges, are sometimes of use in affections of the mucous membrane, allaying irritation; and have been used for sedative action on the throat, etc., before taking impressions or exploring the soft palate, etc.

**Ammonii Nitras** is the salt which, when fused and further heated to 350° F., gives off nitrous oxide gas and water vapour.

**Ammonii Salicylas** is now official in the new U. S. Pharm. It is a white powder very soluble in water, supposed to make a useful alkaline antiseptic solution.

**Ammonio Ferric Alum** has been much used as an astringent and styptic, but is probably inferior to 'Monsel's Solution' (oxy persulphate of iron).

**Ammonio Mercuric Chloride** (Sal Alembroth) is not quite such a powerful germicide as the ordinary sublimate, but combines less rapidly with albumin, and is largely used in many forms and preparations in antiseptic surgery.

**Amyl Colloid** (Anodyne Colloid) for external use in facial neuralgia. Composed of amyl hydride, alcohol, aconitine,

veratrine, and collodion. For the full effects of both the cooling and sedative effects of the alkaloids it should be covered over with moist spongio-piline.

**Amyl Hydride** (Hydramyl, Pentyl Hydride, etc.) is one of the most volatile distillation products of petroleum spirit, used to produce refrigeration by evaporation. For external application on the face for neuralgia a convenient form is Amyl Colloid, which see.

**Amyli Iodum** (iodized starch) is said as a local application to have all the properties and uses of iodoform.

**Amyl Nitris.** Amyl nitrate, so long used by inhalation in threatened collapse after chloroform administration, is now also recommended in symptoms of a toxic overdose of the adrenalin constrictors so frequently employed in connection with local anæsthetics. It should be pointed out that if for economy it be kept in a drop bottle it soon becomes inert. As a substitute isobutyl nitrate has been similarly used.

**Amyloform.** A compound of formaldehyde and starch, a nearly insoluble powder, has been strongly recommended as an antiseptic dressing, slowly evolving formaldehyde. Also, mixed with thymol, zinc oxide, etc., it has been used as a dusting-powder termed 'formoform.'

**Anatomical articulation.** Mr. J. W. Parfitt discussed before the Odontological Society (*Trans.*, XXXV., p. 108) the actual ascertained movements of the mandible, and showed a mechanical 'articulator' for reproducing them on the models in prosthetic work. The essential feature of Mr. Parfitt's instrument was that provision was made not for uniform motion in direction and degree for all cases, but for imitating or reproducing the particular kind of motion proper to the individual case. This is attained by making for each case a well-fitting trial plate, to which two rods of soft metal about 8 inches long are attached, and bent so that their extremities lie one over each condyle.

Tracings of joint paths are obtained by graphic methods and their positions determined. From these curves metal templates are made and fixed in the maxillary representative of a specially constructed mechanical 'articulator.' This instrument, it is claimed, can then be made to imitate all the movements, and those only, of the case to which it is adjusted within the limits of the motion of mastication. It was found quite easy to obtain the tracings of movements; but the most difficult thing still remained, as ever, to take the correct 'resting' bite. In the discussion, some divergence of opinion was expressed as to the advisability in edentulous cases, where absorption had altered the relative shape of the jaws, of imitating with practical results the cusp occlusions of the natural adult dentition. Quite opposite views were stated as to the utility of young natural pattern artificial teeth for artificial and senile conditions. *See also Articulation.*

**Anæsthesia.** In last year's issue we devoted very considerable space (pp. 46 to 76) in abstracting the most recent literature upon this subject (some have thought an excessive space), but the point of view was entirely that of dental application, and there had been a remarkable interest aroused by the claims of certain revived agents (not really new), such as ethyl chloride, its admixture with similar volatile bodies under various fancy names, and its administration in sequence with nitrous oxide, ether, etc. Also the question of better instruction in this department of work during the ordinary medical curriculum had also just come to the front, and was being insisted upon by those best qualified by experience to appreciate the great importance of the matter.

It is some consolation to us, as a justification, that our modest compilation has been considerably quoted from, and received the attention of specialists who have since written on the subject. This was indeed, we believe, the



first work (excepting the periodical journals) to publish an authentic account of Dr. Hewitt's important observations on the great advantage of the nitrous oxide ethyl chloride sequence, which has proved, we understand (apart from the question of portability), the most satisfactory advance in the direction of considerable prolongation of simple gas narcosis.

During the past year so much has been added to the literature of observation and statistics, that any attempt to epitomize it would monopolize even more of our space than was thought justifiable in previous editions.

We can, therefore, but mention the most important contributions, after which the principal original matter contributed to our pages in the past will be condensed with references for the sake of continuity.

The main interest during the past twelve months has been centred upon the safety of ethyl chloride, its best method of administration, the justification of chloroform in certain cases (upon which subject great divergence of opinion is still expressed), the use and limitations of local anæsthetics, and certain curious observations upon the effect of light radiations presumed to act through the optic lobes. As a minor department of the subject, we shall mention the remarkable effects of pulp obtunding and desensitizing the dentine by forcible injection or so-called 'pressure anæsthesia.' This has, with some logic, also been described as 'pressure cataphoresis.' *See also Obtundents.*

*M. Aston Key* (*B.D.J.*, XXVI., p. 193) carefully considers the technique of ethyl chloride, summing up :

'The increase in duration of anæsthesia that is given by gas and oxygen does not, in my opinion, justify the outlay on the plant or the practice necessary for the acquiring of perfection in its administration.

'If we compare the periods of anæsthesia available for

operating by these foregoing ways, we may say roughly that  $N_2O$  plain gives, say, thirty-five seconds, that gas and oxygen and ether give forty-five seconds, that the use of Pattison's inhaler gives more or less time, according to the suitability of the patient and the practice of the anæsthetist. Gas and ether will, of course, give us longer time if pushed, but I suggest that this is at the cost of the patient's comfort afterwards. It is not until we come to ethyl chloride, or its mixture with methyl chloride and methyl bromide, known as somnoform, that we get into the more spacious regions of a comfortably long anæsthesia.

‘Anything under fifty-five to sixty seconds is surprisingly short, and sometimes for dental work I have easily obtained from eighty-five to ninety seconds. In general surgery three minutes can easily be had, and more if necessary.’

Then describing the various inhalers and methods, he says :

‘My favourite method, however, is to give ethyl chloride in conjunction with nitrous oxide, after the manner elaborated by Dr. Frederick Hewitt. With this apparatus the ethyl chloride can be introduced into the bag at the desired moment, and can, if necessary, be replenished without disturbing the administration. I generally use from 6 to 8 c.c. of ethyl chloride.

‘It is rarely necessary to fill the bag with nitrous oxide to more than three-quarters of its capacity ; one advantage of this method is that the whole apparatus can be prepared before the patient enters the room. After carefully adjusting the face-piece in the usual manner, let the patient breathe the nitrous oxide gas and allow three breaths to escape. Then move the lever over and cause the breathing to be in and out of the bag. At the same time the tap at the bottom of the bag is turned, the phial

tipped up and its contents are run into the bag. At Mr. Canning's suggestion we have run this in in two portions with a brief interval of about eight seconds, thereby obtaining a yet more gradual induction. The average induction period lasts about forty-five seconds. After a few breaths some quivering of the eyelids may be noticed, and after the lapse of eighteen or twenty seconds it is useful to ask the patient to follow with his eyes the anæsthetist's fingers moved about before his face. When he fails to do so you know that anæsthesia is approaching. The next symptom to be looked for is muscular relaxation. and to this end the patient's arm should be raised by the anæsthetist to see if it be passive.

'The results obtained from ethyl chloride undoubtedly vary somewhat, according to the idiosyncrasy of the patient, but it is certainly true that it is worth while with this drug to have the patient more prepared than is usual when giving nitrous oxide, that is to say, by not administering immediately after a meal, and still less so after much exertion, such as a brisk walk. At the same time, even under adverse circumstances, or in emergency cases, I have never seen untoward occurrences.

'In conclusion, we may say that in ethyl chloride we have an agent which, more than any other, gives us a comparatively long anæsthesia with a quick induction and a quick recovery, thereby fulfilling as a remedy the conditions laid down as ideal by the old Latin medical proverb: "Quickly, safely, and pleasantly."'

*J. Blumfeld* (*D. Surg.*, I., p. 252) contributes an article on 'Longer Extraction Cases,' which usefully deals with the proper preparation of the patient.

*Thomas D. Luke* (*B. D. J.*, XXVI., p. 311) has a vigorous letter strongly condemning the employment of chloroform in dentistry. Writing from Scotland, he says:

'Here, in Edinburgh, the birthplace of chloroform, the

drug has, not unnaturally, a strong hold, and dies hard in dental work, but we are getting a little more chary of its employment than we used to be, as evidenced by the Dental Hospital practice. In this institution in the year 1898 there were no less than 293 chloroform administrations; in 1903 these figures were reduced to 16, and last year there were no chloroform cases at all.

‘During the past ten years chloroform has never been administered in the dental department of the Royal Infirmary, Edinburgh, although no less than 1,200 cases of dental extraction—many of them very extensive—have been got through *annually* without pain to the patients, gas and ether, with latterly gas and ethyl chloride, being the anæsthetics used. Not once during the whole of this period has it been necessary to employ a tongue forceps or artificial respiration. . . . But I will only say in conclusion that to use chloroform in dental surgery at the present day is to take the gravest responsibility on one’s self, and in the vast majority of cases is an open confession of archaicism and incompetency.’

On the other hand, so strongly do some hold to a contrary opinion, that *Dr. Pearson* writes in reply to the above (*B. D. J.*, p. 616):

‘I have given  $\text{CHCl}_3$  for teeth extractions alone in a large dental establishment in Cape Town on an average of ten cases every month for the last eleven years—that is, more than 1,300 cases—and say 200 more for general work, or a total of 1,500 cases in the period.

‘For the previous twenty years, I think, if I reckon ten cases per annum, or say 200, or a grand total of 1,700 cases, I am within the number. Well, sir, after an experience of over thirty years and of 1,700 administrations, your readers will allow that my opinion is of some value, and I have no hesitation in saying that chloroform is the safest and most reliable anæsthetic known to science for

general surgical work. I have used ether, and have seen ether and  $N_2O$  used frequently, also the ACE mixture, and I have administered gas in more than 3,000 cases. Somnoform came into use with a great flourish of trumpets about five years ago, and any man who used  $CHCl_3$  for dental work was severely condemned by writers with more experience in ink than in chloroform. With the exception of nitrous oxide, I believe chloroform is more extensively used throughout the world than any other anæsthetic, and will continue to be used when all the others are forgotten.'

He proceeds to say that he has never had or seen a fatality, and only one case where he had the least anxiety. 'I have seen chloroform given in a reckless and dangerous fashion, and I have wondered that the number of accidents was not greater. For instance, it is quite a common thing to see the anæsthetist holding the inhaler just charged with a drachm or more of the fluid close to the patient's mouth, and that, too, while the respirations have been increased in frequency by the struggling of the patient.'

*Dr. Guy*, of Edinburgh, demonstrated the administration of ethyl chloride at the annual meeting of the B. D. A. at Southport, as reported in *B. D. J.*, XXVI., p. 606, with illustrations of his simple apparatus devised for giving either gas, ether, ethyl chloride, or any sequence of them. He favours Hewitt's method, and sums up that (1) the dose of ethyl chloride must be accurately measured into a graduated glass tube, which should be attached to the apparatus before the administration begins; (2) the employment of lint diaphragms, cotton-wool, or other medium on which the ethyl chloride is sprayed, makes for uncertainty of dose and uneven rate of evaporation; the drug should be poured into the bag, never discharged into a face-piece; the best results are obtained from measured

quantities introduced into the bag of a Clover ; (3) the channels through which the patient breathes should be wide.

The bags and the rubber-tubing employed should be of red rubber.

On the question (which is still largely one of ethics) as to the competence of a dentist, as such only, to administer anæsthetics, a valuable article by *Thomas D. Luke (B. D. J., XXVI., p. 804)* shows that, as a matter of fact :

‘The law is absolutely ambiguous on the point, and in the few cases in which a fatality has occurred, and which have actually come into court to be decided upon, the decision of the presiding judge has largely hinged on the amount of skill presumably possessed by the person responsible for the anæsthetic, and little account has been taken of the fact whether the person administering the anæsthetic actually had any qualification or not in the way of a diploma. The fact is, of course, that a judge is scarcely capable of dealing with such a technical matter, and he is not in a position to say whether any case was conducted with a proper amount of skill or not.

‘The medical profession, and more especially those responsible for medical education, are undoubtedly to blame for the state of matters which exists. Until recently no attempt has been made to see that candidates for the qualifying medical diploma have familiarized themselves with the better-known anæsthetic agents, and, indeed, the ignorance of the average medical practitioner of such a commonly used anæsthetic as nitrous oxide has been notorious.

‘A step in the right direction has now been taken, however, in seeing that practical instruction in anæsthetic work is carried out at the various teaching hospitals, and we may hope that in a year or two the lamentable state of ignorance which has existed will be a thing entirely of the past.’



He sums up that all the dental practitioner in many places can be asked to do is to take every possible precaution, and at least never attempt to personally both operate and administer at the same time.

Perhaps the most important contribution to the literature on ethyl chloride during the year was the paper read at the Society of Anæsthetists on March 3 by *W. J. McCardie* in opening a discussion upon its use in general surgery. It appears in full in *B. D. J.*, XXVI., pp. 20 and 21, and, as not confined to dental uses, it is much too long to abstract with justice. We quote, however, a few passages of interest. He says, referring to its use as far back as 1848 by Heyfelder :

‘ Heyfelder says that “ his three cases show that salzäther is well borne, and causes no cough, no difficulty of breathing, no increase in salivary or lachrymal secretion, and no injection of the conjunctiva. The inhalations were successful, and there was no great discomfort during or after them. But the high price of the drug, and the difficulty of getting it pure and its great volatility, did not allow of its frequent use.” This description, written in the year after the discovery of chloroform, is mostly true to-day.

‘ At the present time ethyl chloride is very largely used, and increasingly so. In fact, it promises, I think, unfortunately, and indeed unjustifiably, to displace nitrous oxide extensively as an anæsthetic, and particularly in one department of our work. There is plenty of room for both drugs.

‘ Now, let us consider that all-important question to us as anæsthetists, and that is the degree of safety of ethyl chloride. What is its death-rate ? Or, rather, how many deaths occurred during its administration ? Let us see if we can deduce anything which will help us in our selection of cases for its administration. If I may, I will first

mention shortly the deaths which have occurred during its administration. They are, so far as I know or have read, seven in number (there have been a few deaths under somnoform, which was claimed to be an absolutely safe drug by the inventors and by the makers, but this, I take it, is to be considered another anæsthetic). One or two deaths have been reported after ethyl chloride, but cannot be reasonably referred to the administration.

‘It would appear from two, and perhaps three, of the deaths I have mentioned that ethyl chloride, like nitrous oxide and ether, is dangerous when there is swelling in or about the larynx, and that possibly any spasm visible in the jaw muscles may in certain cases be coincident with, or cause spasm in, the larynx. Possibly, too, the vapour, if concentrated, may originate spasm of the larynx, especially if it be inflamed. The vapour certainly causes increased vascularity of mucous membranes. In these cases, then, of inflammation or swelling about the upper air-passages, ethyl chloride as an anæsthetic would seem to occupy a place about midway between ether and chloroform. Thus, in marked cases of the type we are discussing ethyl chloride is better avoided, though hitherto its vapour has been supposed to be unirritating. In any case the deepening and quickening of respiration during narcosis will increase the risk. In two at least of the fatalities the patient’s heart has been found at the necropsy to be fatty. Danger seems sometimes to appear with the startling suddenness which is so often associated with the administration of chloroform.

‘Ethyl chloride, then, has a very definite and increasing mortality. Now, it is impossible to collect accurate statistics, but ethyl chloride must have been used several hundreds of thousands of times, and if we take the death-rate at, say, about 1 in 10,000 cases we shall, I think, be somewhere near the mark, supposing that there have been

no more fatalities than those mentioned. The death-roll has been increasing rapidly in the last year coincidentally with a great increase in the number of administrations. You will observe that no death has taken place in a healthy or comparatively healthy man, except in the dental case and the postman, and that in three cases there have been serious lesions about the upper air-passages.

‘Speaking comparatively, I should judge that ethyl chloride is nearly as safe as ether, and by no means as safe as nitrous oxide, which is still in a class by itself. Ware says that in an experience of 1,000 administrations he has six times seen symptoms bordering on fatality. In each instance they were those of respiratory interference due to the retroplaced tongue during profound narcosis or to insufficient allowance of air. For myself, I have not yet had a danger case in nearly 1,500 administrations for all sorts of operations, and only twice have I had to pull out the tongue, and then in operations for removal of adenoids and tonsils. I have not yet had to perform artificial respiration. However, one of my patients died suddenly from syncope in bed while straining one and a quarter hours after an anæsthesia lasting about ten minutes. He, however, was, I think, the worse subject I ever had to anæsthetize, for he suffered from stricture of the urethra.

‘I have questioned the attendants in two large dental departments, and they unanimously stated that the after-effects of ethyl chloride were often severe and prolonged, and that vomiting was frequent. The attendants see more of the patient afterwards than does the anæsthetist.

‘This brings me to the question of the routine administration of ethyl chloride in dental operations. Because of (1) the less safety, and (2) the severity and frequency of after-effects, and especially the frequency of collapse and vomiting, I think now, as I wrote two years ago, that ethyl

chloride should not be used in dental work, if what is necessary can be done under nitrous oxide. Ethyl chloride anæsthesia is an ideal one for the operator, says the dental surgeon, and it is an ideal drug for the administrator to give, but the patient very often does not think it afterwards an ideal anæsthetic. In cases where I have administered a full dose I have several times known patients to be faint and ill and sick, in fact, collapsed, for from one to two hours, and this, moreover, has had a bad effect on the recovery of other patients in the room. In private work it must be very undesirable, to say the least, for the dentist's waiting-room to be occupied by a patient ill after ethyl chloride.

‘In dental work ethyl chloride is advisable for those who have taken gas badly before, for alcoholics, patients with trismus, for hysterical persons, and for small children. In this last class of case I always give ethyl chloride instead of “gas” to small children under ten years, or big children under eight years, unless the operation be very short or simple. In all other dental cases the continuous method of administering gas gives such good results, if more than thirty seconds’ anæsthesia be needed, that I think we are not justified in advising ethyl chloride for them. It is significant of the extensive increase in the use of ethyl chloride in dental work that the manufacturers of gas are beginning to fear that their trade will soon disappear. It seems already to have seriously diminished.

‘Gas and oxygen I have quite given up in dental and general surgical work since I began to administer ethyl chloride. In both classes of work almost as good a type of anæsthesia can be obtained by gas mixed with air as by gas and oxygen; and in general surgical work a much better and deeper narcosis can be gained by ethyl chloride when something short of etherization is wished for.

'Nitrous oxide as regards safety is still in a class by itself, and where it can be administered it should be administered. We should use ethyl chloride rather to replace chloroform and ether in certain cases than to administer it as a substitute for nitrous oxide. For short operations needing longer and deeper anæsthesia and greater muscular relaxation than nitrous oxide, or nitrous oxide mixed with oxygen affords, ethyl chloride is of great advantage. As a preliminary to etherization it is unequalled. In cases where there is much thickening of the tissues of the neck, or any suspicion of laryngitis or œdema of the larynx, or there is narrowing of the air-way beyond the mouth, it is contra-indicated.'

Much later in the year than the above was written, *Dr. Luke* contributed the following full and interesting statement to the *B. D. J.*, XXVI., p. 1025, in which the references given enable each fatality to be studied if necessary.

1. Lotheisen's case. Patient, male, aged forty-one. At Innsbruck. *Munch. med. Wochenschrift*, November 18, 1900.

2. Bossart's case. Patient, a child, aged twelve months. At Aaran. *Corresp. Blatt für Schweizer Aerzte*, October, 1902.

3. Olcott Allen's case. Patient, male, aged twenty-eight (coloured man). Operation for hernia. *American Journal of Medical Science*, December, 1903.

4. Patient, female, suffering from advanced dropsy. See *Trans. Society Anæsthetists*, 1905, and *Lancet*, October 7, 1905.

5. Patient, male, with swelling in neck. *Trans. Society Anæsthetists*, and *Lancet*, October 7, 1905.

6. Patient, male, with abscess in the jaw. McCardie, *Lancet*, October, 1905.

7. Patient, male. Dental case. *Lancet*, October 7, 1905.

8. Patient, male. Dental case. At Haslar Hospital. Recorded in Portsmouth *Evening News*, April 24, 1905.

9. Patient, female, aged fifty. At Stourbridge. *British Medical Journal*, July 8, 1905.

10. Patient, female, aged forty. Dental case (somnoform). At Enfield. *British Journal of Dental Science*, April, 1904.

11. Patient, female, aged forty-two. Dental case. Locality unrecorded. *British Journal of Dental Science*, April, 1904.

12. Patient, boy, aged ten. At Royal Albert Hospital, Devonport. *The General Practitioner*, August 19, 1905.

In addition to these cases which are actually recorded, there have come to my knowledge the following fatalities, but I have almost no particulars of them.

13. A case at Llandudno in 1904, death occurring during a dental extraction. Details lacking.

14. A case at Swansea in 1904, also dental. Details lacking.

15. A case at Edinburgh in July, 1905, the patient, a lady of fifty, with a weak heart. Died in a dental chair.

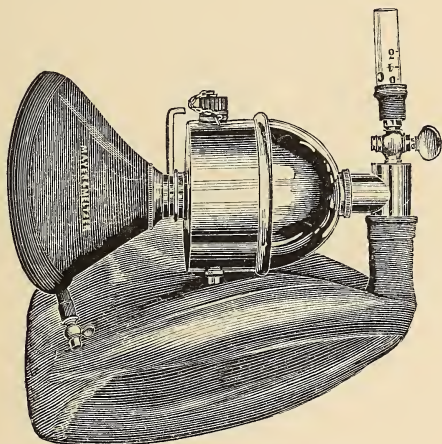
16. Another case at Edinburgh, also in the month of July, 1905, the patient being a young man about twenty-six. This patient died at the commencement of the anæsthesia, practically before the operation had been attempted. I lack further details.

Here we have sixteen cases in all which have come to light, and in view of the youth of ethyl chloride as an anæsthetic agent this list is sufficiently formidable, and calculated to check the indiscriminate use of the drug. The idea that ethyl chloride is a sort of glorified nitrous oxide which one can carry about in one's waistcoat pocket seems to be rather prevalent, and the highly toxic character of ethyl chloride is not sufficiently recognised.

It is noteworthy that nearly one-half of these fatalities



occurred during dental operations, and one is rather disposed to conclude that ethyl chloride is used too often where nitrous oxide would suffice and be much better. There seems no call whatever for a 'scare,' and certainly not for any idea that ethyl chloride is an anæsthetic which is best left alone. There is no doubt whatever that it is a most valuable anæsthetic agent, but in regard to its use discrimination is highly necessary, as in many things.

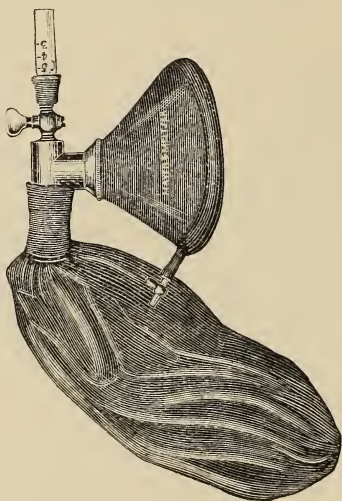


*G. W. Bamfylde Daniell* (*Lancet*, CLXIX, 4286, p. 1176) gives a minutely tabulated account of 400 cases of the administration of ethyl chloride and its mixtures with and without nitrous oxide. The statistics are much too elaborate to usefully abstract, but as many, if not the majority, refer to dental cases, the author's general results are satisfactory. It may be interesting to illustrate the form of inhaler he uses, for the blocks of which we are indebted to him and to Messrs. Meyer and Meltzer.

Among the many contributions to dental literature on anæsthetics in dental work mentioned in the ANNUAL last year, one of the most notable and comprehensive was a

paper and demonstration given at the Eastern Counties Branch of the B.D.A. by C. Carter Braine, the Surgeon Anæsthetist and Lecturer at Charing Cross Hospital. This is fully reported, with a good discussion, in the *B. D. J.*, XXV., p. 717. We retain the following extracts :

‘The dental surgeon has seen a great deal of anæsthetic work during his pupilage at the dental<sup>1</sup> hospital, and in many instances has had plenty of opportunities of actually



administering the anæsthetic himself, and he has thereby become more or less proficient in giving nitrous oxide, and is well able to appreciate when an anæsthetic is given well and to criticise when it is administered indifferently. These dentists, when distributed throughout the country, call in the local practitioner to administer gas for them, and are surprised to find that the local doctor, as a rule, knows very little about the administration of nitrous oxide ; not being accustomed to its use, and never having received instruction, he either errs in not giving enough nitrous oxide, obtaining

scarcely any anæsthesia at all, or gives so much that cyanosis, jactitation, deep stertor, and opisthotonos are present, considerably hampering the operator during his extractions ; or he may simply attend as a medical man and leave the administration to the dentist. Anæsthetists frequently hear these statements from their dental friends.

‘Of all anæsthetics, the one which requires the greatest skill and the most constant practice to administer efficiently is undoubtedly nitrous oxide. It is our oldest and most useful friend, and the one of all others the least likely to be followed by any after-effects ; but, unfortunately, the anæsthesia produced by its inhalation is short, averaging about thirty seconds, and although this is ample in the vast majority of cases, yet a few seconds’ longer anæsthesia, if attainable, in reserve, as it were, is a very great advantage ; but to obtain that extra period of anæsthesia we have to take the chances of greater liability of after-effects, such as headache, nausea, or actual sickness, and there is no anæsthetic I know of which you can absolutely state there will be no after-effects following its employment, but nitrous oxide almost reaches this high ideal.

‘An important point in giving  $N_2O$  is to keep the gas apparatus separate from that you use to give ether. Some administrators give  $N_2O$  with the same apparatus they employ for ether, and declare that they can detect no smell of ether about the apparatus ; perhaps they cannot, but their patients can, and it is a very common thing to hear patients say : “ Your gas is much nicer than Mr. —’s ; his had such a nasty taste.” A patient who has once inhaled ether can detect the slightest odour of it about the apparatus ; moreover, the tendency to nausea and sickness is much increased, and therefore it is wise to use two anæsthetic bags—one for dental work solely, and the other for general surgery.

‘Occasionally the daily routine of administering  $N_2O$  is varied by cases of interest. I may briefly relate one or two cases of more than usual importance.

‘CASE 1.—Female, aged twenty-one, required two teeth to be extracted under  $N_2O$ . Gas-bag was filled and the facepiece applied. The patient immediately began to breathe deeply and regularly, and to my very great surprise rapidly became unconscious. The pupil was dilated and the conjunctiva insensitve. I therefore pronounced her ready for operation. The dentist could not believe it, for he had noticed that I had given no  $N_2O$  at all—the stop-cock had never been turned, and no gas had entered the facepiece. Being assured it was all right, he extracted the teeth; the patient never winced, felt no pain, recovered consciousness in about two minutes.

‘CASE 2.—Female, about fourteen years of age. Parents said that during a previous administration she had given trouble by swallowing her tongue, and that she was able to perform this feat at any time. Being incredulous, I asked her to swallow her tongue for me to see. She gave a gulp, and then opened her mouth—there was no tongue there! It was posterior to the anterior pillars of the fauces, and presented a remarkable appearance, with the ranine veins running upwards and converging to the roof of the palate, and in the case of cessation of respiration it would have been difficult to get hold of anything to drag forward. This case illustrates the point that any statement made by a patient about a former administration, however absurd it may appear, should not be entirely disregarded.

‘It is a curious fact that in days gone by every endeavour was made to exclude the slightest trace of air gaining admission to the face-piece, and that whenever an unsatisfactory anæsthesia resulted it was attributed to the intake of air somewhere. Now air is admitted deliberately and with a beneficial result in the anæsthesia obtained.

‘Some administrators give it continuously, while others prefer an intermittent administration, an inspiration of air being permitted through the stop-cock at the will of the

administrator. The administration is prolonged, and the resulting anæsthesia is also prolonged and not accompanied with that marked dilatation of the pupil, cyanosis, jactitation, etc., so prominent a feature with  $N_2O$ . Occasionally a full minute anæsthesia is obtained. It is very serviceable in children, anæmic women, and all who become anæsthetized too quickly with  $N_2O$  for a satisfactory anæsthesia to ensue. An anæsthesia of five minutes and upwards can readily be maintained, during which a skilled operator could almost clear a mouth of teeth and roots.'

Upon the very elegant method of Dr. Hewitt in the gas ethyl chloride sequence we may here quote again our original account of it in the 1904 issue of the *Dental Annual*, as revised by Dr. Hewitt himself for us last year :

'While a supply of gas is necessary, the containing bottle or gas-holder need not be in the operating-room itself—sometimes a great advantage. Twenty-five gallons will suffice for a dozen administrations. The requisites are two or three well-fitting mask facepieces, connected by a valved stop-cock with a 2-gallon rubber bag, closed at the lower end by a short connecting rubber tube slipped over the mouth of a glass test-tube or small bottle of from 5 c.c. to 10 c.c. capacity. The short connecting rubber tube is fitted with a stop-cock or pinch-cock.

'The 2-gallon bag is filled with gas, disconnected from the supply, and the stop-cock or pinch-cock closed. The little glass tube is then charged with ethyl chloride, and attached to the connecting-tube. All this may be done out of the operating-room and the sight of the patient, before the patient enters the room. Constricting clothing being unloosed, and the patient in a sitting posture with the head neither flexed nor extended, the mouth being suitably propped, breathing of air through the mouth is requested to assure the action of valves and fitting of face-piece. After turning on the gas, a couple of

breaths are allowed to escape by the expiratory valve. Throwing this out of action, the remaining gas is breathed to and fro. After the few inhalations necessary to induce in each particular case the primary nitrous oxide anæsthesia, the stop-cock or pinch-cock is opened, and, by tilting up the little glass tube, the ethyl chloride is thrown into the bag, upon the inner surface of which it rapidly spreads and evaporates into the contained gas. There is then produced with remarkable rapidity a deep stage of anæsthesia, which is more profound and tranquil than is attainable in the same time with either agent alone. Dr. Hewitt considers, without being able to explain the fact, that the induction and recovery are more rapid and freer from unpleasant complications than when ethyl chloride is administered alone by any arrangement of mask and bag. From 3 c.c. to 5 c.c. usually suffices, and about ninety seconds of quiet anæsthesia can be expected.'

*W. Guy* (in *B. D. J.*, XXV., p. 249), gives a very exhaustive account of the different described methods of giving ethyl chloride or somnoform, with or without gas, and considers his own method to be slightly superior to that of Dr. Hewitt. He attaches above the bag, to the lower part of the ordinary three-way Barth tap-fitting, a small tube, to which by a short length of flexible tubing a glass tube (graduated or not) may hang, and be tipped into the bag as required. The article is well illustrated, showing different inhalers, etc.

Chloroform, though much discountenanced by so many, is considered to have special advantages in dental work when administered by Dubois's nasal method. As quoted in the *Dental Surgeon* (*I.*, 16), *Mr. Pegton Levason*, Herefordshire General Hospital, says :

'I was present when the apparatus was used at the hospital by Dr. Waller, and was struck by the perfect anæsthesia exhibited when the patient was well under, and the remark-



able lack of any reflex muscular action. Since then I have operated in three cases, Dr. Chapman being the anæsthetist, removing in each case respectively 23, 18, and 36 stumps and teeth. I may say that I have never extracted teeth under such favourable conditions. There was absolute quietude on the part of each patient, and the fact that the anæsthetic could continue to be given through one or other nostril made the operation considerably more expeditious. There was no necessity at any time to stop even for a moment, the mouth being left to me, and never covered up, as frequently occurs in any other method of anæsthetizing. In no case was there any vomiting at the time, which is always a great nuisance in dental work. I must say that it struck me there was less hæmorrhage, though whether this were due to the anæsthetic or to the condition of the patient I could not say. Certainly there was less than is usual in similar operations under ether, so much so that I am inclined to urge this as an argument in its favour in dental work.

‘In all three cases the patient made a rapid recovery, and owing to the complete and uniform anæsthesia, and consequent lessened hurry, there was considerably less wounding of the surrounding tissues than is usual after such wholesale extractions. Others are better qualified to speak as to the safety of the method, but I may say that one of the patients operated on was a person to whom I should have hesitated to administer nitrous oxide gas. While the anæsthetic is being administered through the nostril the operator is conscious of the presence of chloroform vapour, to which I am very sensitive ; but this was much less noticeable in the last and most prolonged of the three cases, owing, I understand, to an endeavour being made to allow the supply of the anæsthetic to synchronize with the inhalations of the patient ; when the supply is carefully regulated it is hardly fair to consider this as an obstacle to the operator, his convenience in every other respect being so very largely enhanced.’

*Dr. McCardie* wrote direct to us last year as follows :

‘Ethyl chloride is the anæsthetic *par excellence* in operations for the removal of adenoid growths and tonsils, when done by experts. In dental I prefer nitrous oxide for routine work, reserving ethyl chloride for patients who take gas badly and for children. From the patient’s point of view, also, nitrous oxide is preferable as causing less physiological disturbance, especially in the way of after-effects.’

R. M. Hatch, of Clifton (*B. D. J.*, XXIV., p. 638), regards ethyl chloride alone as superior to any mixture. He bases the claim of superiority upon the absence of disagreeable smell and the stability of the simple drug. In justice to Mr. Hatch, it may be recorded that upon the first introduction of ‘somnoform’ he urged what is now confirmed by Mr. Carter Braine and others.

The influence of atmospheric conditions, temperature, etc., upon the effect of anæsthetics, formed the subject of a very suggestive paper read at the annual meeting of the B.D.A. at Southport by *Harvey Hilliard*, having special reference to his experiences with nitrous oxide. Recounting some 1,500 administrations in one place, where certain factors were fairly constant, he says (*B. D. J.*, XXVI., p. 598):

‘METEOROLOGICAL CONDITIONS AS AFFECTING NITROUS  
OXIDE ANÆSTHESIA.

‘Observing closely the clinical phenomena of the anæsthetic in each patient, and working regularly at the hospital on the same class of persons, it soon became evident that the induction, the duration, and all the features of the anæsthesia produced were on certain days satisfactory in almost every case, whereas on other days the anæsthesias were remarkable for the reverse characteristics—that is to say, jactitation, cyanosis, phonation, and fleeting narcosis were present. I noticed that the days on which

the cases were unsatisfactory were usually associated with unpleasant weather, whereas the days on which the cases were normal coincided with fine weather. On wet and windy days, therefore, I learned to expect the patients to behave less satisfactorily; but on fine days I looked for quiet, sleep-like anæsthesia. The differences in aggregate results of work according to different weather conditions having once been recognised, it soon became easy on any given day, after a number of administrations had been conducted, to predict with fair accuracy the height of the barometer. Dr. Moritz, during his period of office as house-anæsthetist at the Royal Dental Hospital, noted very carefully a large number of cases for me, together with the meteorological conditions at the time of the administration. We also endeavoured to conduct the administrations in the same manner—that is, the gas-bag was always kept at the same degree of distension, never over-distended, and the gas in consequence given at a plus pressure, and never insufficiently filled, so that no effort of aspiration was necessary to breathe from it. When air was administered with the gas it was given continuously in definite quantities, and not by the intermittent method. Furthermore, we agreed to adopt the same signs of anæsthesia; thus the eye reflexes were not considered, as they are notoriously unreliable; the guides selected were the character of the respiration, faint stertor, and beginning jactitation in the orbicularis palpebrarum, with dilatation of the pupils.

‘The administration was always stopped when these four signs were present, and the gas never pushed to deep cyanosis with marked general jactitation. Those cases in which there was hysterical screaming or doubt about the duration of the actual anæsthesia were not included in our notes. Although, before we had commenced to make careful records of meteorological conditions during the

administration of "gas," we had a general impression that atmospheric variations considerably affected the course of the anæsthesia, yet it was not clear whether this was due to variations of barometric pressure alone, or whether the hygrometric condition of the air, or the temperature, were not also contributory factors in the result. For several months, therefore, before administrations were commenced, we noticed daily the temperature of the operating-room, of the outside air, and the amount of moisture in the air, in addition to the barometric pressure as recorded by a barograph in the room. It was found that the only factor of importance was the barometric pressure, that the results were identical at the same pressures, whether the air was fairly dry or there was rain, whether it was freezing or of summer heat. Latterly, therefore, these points have been disregarded, since also the gas from the cylinders is always dry and becomes warmed to the same temperature by the mucous membrane of the patients' respiratory passages, from which it also takes up a certain amount of moisture before it is absorbed into the blood.

'It was found that variations in the atmospheric pressure did not have such a marked effect upon the anæsthesia produced by *gas alone* as was observed when air or oxygen was administered with it, and the conclusions arrived at apply with much greater force to the administration of the mixture. With *gas alone* and when the *barometer was high*—*i.e.*, 30 inches or over—the induction of anæsthesia was longer, there was less cyanosis, with a given depth of anæsthesia, and distinctly less jactitation; the gas could usually even be pushed to abolition of the conjunctival reflex on a high-barometer day without undue cyanosis or jactitation presenting themselves; whereas with gas alone on a *low-barometer* day it would be useless to try to abolish the conjunctival reflex, in the hope of obtaining a longer anæsthesia, because the patient

would become so deeply cyanosed and jactitate so excessively, that any increase in the duration of anæsthesia would not be available for the operator.

‘ With an increase in the time of induction of anæsthesia, the duration of available anæsthesia also increases, and with a pressure of 30 inches of mercury or over, it was observed that the anæsthesia was quiet and lasted nearly as long again as when the barometric pressure fell to below 29 inches. The recovery from the effects of the anæsthetic is also more satisfactory on fine days; whereas, when the *barometer is low* patients are more likely to complain of headache, or a sense of faintness, and are less inclined to get up and walk home immediately after the operation than when the atmospheric pressure is high. These are points of considerable importance to busy practitioners with limited surgery accommodation, and will be referred to again later.’

The author gives a number of tables showing the general effects of gas alone or with air or oxygen at varying pressures, and concludes as follows :

‘ *The Practical Application.*—As a result of my observations on the influence of barometric pressure upon nitrous oxide anæsthesia, I am convinced that when the barometer is low no attempt should be made to abolish the ocular reflexes; that the administration should be stopped when jactitation shows itself in the orbicularis palpebrarum and other face muscles, when the breathing becomes stertorous and irregular, and when the pupils dilate. I find that better results are obtained when no air is given with the gas, for I have proved that if sufficient be admitted to mitigate the asphyxial symptoms of the nitrous oxide alone, the patients are likely to be noisy and that the anæsthesia is fleeting.

‘ For these reasons, when the barometer is low I do not advise prolonged administration of gas, either by

Mr. Paterson's method, or my own by means of a nasal tube, unless a narcosis of over three minutes is required. If ethyl chloride be mixed with the gas according to Dr. F. W. Hewitt's method, better results are obtained for periods of narcosis of less than three minutes' duration; but for longer anæsthesias, after induction with nitrous oxide, a mixture of ethyl chloride and chloroform, containing half a drachm to the ounce, administered by means of a Junker's apparatus, gives the most satisfactory results. In any case, however, when there is a fall in the barometer pressure, unpleasant after-effects are more likely to be met with.

'In view of the fact that on low-barometer days the anæsthesias are shorter than the average, unusually difficult or long operations should not be attempted, and it is wiser not to promise a patient that a lengthy operation will be completed at one sitting. If a patient's friend insists on being present during an administration of gas when the barometric pressure is low, it will be best to warn him that the patient may phonate and become livid in colour, and that the available anæsthesia will be short.

'When, on the other hand, the barometer is high, air or oxygen should always be administered with the gas, for by so doing nearly all the asphyxial symptoms and also the corneal reflex may be abolished, and long, quiet, sleep-like anæsthesia induced. Prolonged administrations of gas with air by means of the nasal tube are very satisfactory, and long operations may be undertaken; for instance, painful carious cavities can be drilled out and filled; it is better not to mix ethyl chloride with the gas. No fear need be entertained of allowing the friends to be present, and if no ethyl chloride be given no after-effects are likely to retard the patient's recovery.'

In the discussion upon his paper, the president,



Dr. Gaddes, considered that with regard to the effect of anæsthesia with a low barometer, he had had some little experience in that direction in the city of Denver, Colorado, where the average barometer was about 25 inches. Anæsthesia there, whether from gas alone or gas followed by ether or chloroform, was very brief. He was told when he began the work in anæsthetics there he would find that patients would give very little time, and that was what he did find. His experience bore out the tables and statements Mr. Hilliard had brought forward.

In the course of an editorial upon the subject in the same number of the journal, it is remarked :

‘ The classical experiments of nitrous oxide plus oxygen exhibited under artificial conditions of a considerable plenum, pointed to what might be supposed to be just detectable ; but the striking results clearly indicated by statistics to be produced by a difference of an inch in the mercury column are as remarkable as we think unexpected. Clearly the discordant experiments with volatile and diffusible agents recorded in different parts of the world must be re-examined with closer attention to such circumstances as the prevailing environment.

‘ As illustrating the importance of these factors in such an investigation, we may mention a remarkable book recently published in the United States by Dr. E. G. Dexter, entitled “ Weather Influences, Mental and Physiological Effects of Meteorological Conditions ” (Macmillan). By the analysis of an immense amount of specially collected statistics extracted from public school records, data of attendance, conduct, and periodic efficiency, with those of general police and State records of assaults, “ drunks,” suicides, murders, deaths, etc., as compared with the compilations of the Weather Bureau, over a large territory of America, Dr. Dexter seeks to establish a relationship between human irritability, instability, emotional states

and conditions of excess or deficiency of nervous energy and the prevailing conditions of temperature, humidity, barometric pressure, etc. From the statistics available (which include, for instance, 40,000 cases of assault in New York City alone), the author deduces an unmistakable relationship between available or reserve bodily energy and air pressure alone; the former being markedly in excess with a low barometer, and deficient under a high one. As no similar difference is traced with different altitudes only, the inference is that change of pressure is the cause. Other meteorological factors are also co-ordinated, with very striking and singular results. If these observations are confirmed as facts, their bearing upon all the happenings of life, and not alone the problems of anæsthetics, must obviously be profound.'

**Anæsthetics.** General Anæsthesia for Dental Operations.

*Written and specially revised in 1905 for the 'Dental Annual' by H. Bellamy Gardner, M.R.C.S. Eng., L.R.C.P. Lond., Anæsthetist and Instructor in Anæsthetics at Charing Cross Hospital.*

[The full text, which may be found in the editions of 1904 and 1905, we have condensed for this issue, to avoid repetition of foregoing matter.]

CHOICE OF THE ANÆSTHETIC.

Almost all the operations of dental surgery involve less risk to the patient's life than the inhalation of the anæsthetic; and for this reason dentists do well to work with one particular skilled administrator if possible, so that their attention may be given entirely to their own work.

Nitrous oxide gas is the safest for operations requiring not more than forty seconds' anæsthesia. By giving this gas through the nose in suitable subjects, several minutes' anæsthesia can be obtained.

Ether, preceded by a small quantity of nitrous oxide, is more difficult to administer, but yields with one average dose three or four minutes' anæsthesia. Some sickness almost always follows its administration.

The above-mentioned anæsthetics may be safely given to patients seated upright in a dental chair, so that the dentist is enabled to work with his accustomed instruments, light, and other accessories.

I should say that *on no account* should chloroform be used for dental work unless the patient is anæsthetized lying down in his bed or flat on a couch, if possible in his own house, and the risks have been thoroughly explained to him and recognised.

#### NITROUS OXIDE AND AIR.

The simplest method is to give a breath of air after about ten respirations of nitrous oxide, and then another after each five respirations following, till a condition of anæsthesia is reached with only mild stertor and a moderate change of colour, when the face-piece can be removed, and a few seconds' longer anæsthesia may be anticipated than with nitrous oxide *per se*. This must be done with judgment, for, though suitable to feeble and anæmic persons and women, a small amount of air only can be given to powerful subjects of either sex and to alcoholics; in such cases the admixture of air often causes them to move, or to become unmanageable. With practice, however, percentages of air, varying from 3 to 30 per cent., may be admitted in most cases, with reduction of jactitation, blueness and stertor, and increased length of anæsthesia.

The actual time taken in arriving at the acme of anæsthesia is longer than with nitrous oxide alone, varying from one and a half to one and three-quarter minutes.

## NITROUS OXIDE AND AIR BY THE NASAL METHOD.

In administering by Mr. Herbert Paterson's nasal apparatus, great care and experience are required to attain the tranquillity and freedom from asphyxial factors characteristic of the oxygen mixture; but the fact that by this method insensibility to pain can be maintained during the extraction of a large number of teeth is now established.

I do not think it so advisable for the extraction of a large number of teeth on both sides of the mouth as ether, because the anæsthetist cannot assist the dentist as well as continuously anæsthetize the patient.

The bag as sold by Messrs. G. Barth and Co. is fitted with an inspiratory valve, but I now prefer to use it without this, as I believe it is less uncomfortable for the patient to breathe to and fro through his nose at first than to discover that he cannot expire at all through the nose before he is unconscious. My plan is to adjust the nose-piece and permit a few respirations to be made through the nose, and, when the patient has become a little confused by the action of the anæsthetic, to pass a definite stream of gas through the nose by slightly distending the bag and thus filling the air-passages sufficiently to produce anæsthesia.

It would no doubt be anticipated that a large amount of air would enter by the mouth; but in actual practice this does not occur unless the pressure of gas is too slight to keep the soft palate forward and maintain nasal breathing. A point which is not apparent at first sight now becomes evident---namely, that the success of the method largely depends upon the presence of the soft palate, and that the mode of breathing consists of nasal inspiration and oral expiration. By thus directing the respiration *ab initio* in a very severe case of cleft palate, I once suc-

ceeded in maintaining perfect anæsthesia, so that a communication between the nose and mouth is not a bar to the use of the nose-piece. Numerous cases for dental extraction with partial nasal obstruction, and others with adenoids, have proved excellent subjects for this form of administration, because a stream of gas under slight pressure will pass through the narrowed air-ways without difficulty where ordinary nasal inspiration would be inadequate to fill the lungs. There remains, therefore, only the one class of complete nasal obstruction for which this method is inapplicable. It must be remembered that the mere fact of prolonging anæsthesia increases the danger of overdosage, and that a full supply of *air* must be given through the stop-cock by admitting it at *every third or fourth inspiration* directly after unconsciousness has set in. It is really unnecessary to procure a deep anæsthesia by this method. A kind of expiratory stridor sets in at the moment of unconsciousness, caused by the blowing forward of the soft palate, and this is a good time to begin the operation.

#### NITROUS OXIDE AND OXYGEN.

The ideal gas anæsthesia is to be obtained by Dr. Hewitt's nitrous oxide and oxygen apparatus, for a perfectly sleeplike condition can thus be produced which is entirely free from asphyxial elements. In administering nitrous oxide and oxygen it may be remembered that oxygen is required in different quantities by various types of patients.

For instance, among healthy subjects, those who are florid and well-nourished require less added oxygen than those who are sallow and of slender build.

Among those whose blood, circulatory system, or respiratory mechanism is in any way impaired, a much larger supply of oxygen should be given.

The administrator must be especially on the alert when the patient appears to have poor chest expansion, for one may then justifiably suspect previous bronchitis, pleurisy, asthma, or tuberculosis. Existing emphysema also delays the due interchange of gases in the lungs. In the conditions above mentioned oxygen is of the greatest value, and its adjuvant properties are also well marked in highly nervous patients, who are apt otherwise to develop muscular jactitation early. Commencing with nitrous oxide and 2 per cent. of oxygen, we should wait until after five or six breaths or *quite regular* breathing sets in, and then increase to 4 per cent., then to 6 per cent. or 8 per cent. of oxygen, according to the type of patient, aiming to produce audible respiration of normal rate. If the breathing be deeper than this, the oxygen should be increased till this object is attained. If more shallow, the oxygen should be decreased to produce the same result, remembering that good anæsthesia always takes one and a half to two minutes, sometimes even longer, to produce.

Soft snoring, if the head be neither flexed nor extended backwards, is an excellent indication for beginning the operation; but I regard the eyes as affording the most invariably reliable sign of complete insensibility. The eyeballs exhibit a kind of preliminary vertical nystagmus before they come to rest, and finally become fixed, with the pupils moderately contracted and looking in a downward direction.

Many find it difficult to decide when the operator should stop in order that the patient may feel no pain whatever; but I have now concluded that, as sight and hearing return before sensation to pain, it is best to watch the patient's eye, and, if this be closed, to elevate the lid during the operation. When the first voluntary movement of the eye in 'looking round' occurs (usually an effort on the part of the patient to find out where he is after his



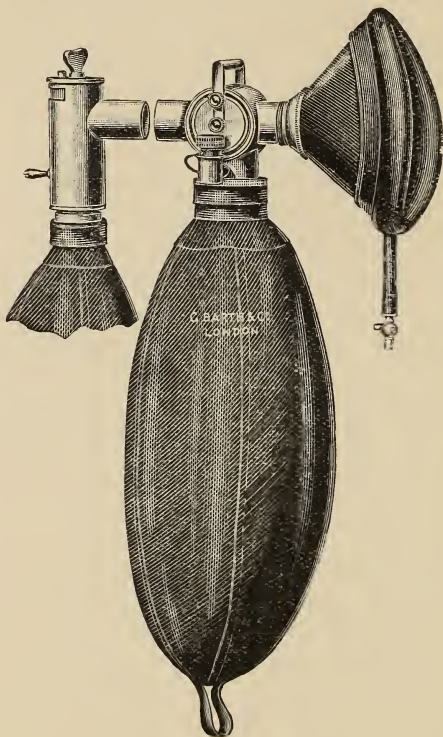
dream has vanished), the operator should be immediately warned to stop.

#### NITROUS OXIDE AND ETHER.

In those cases where a long anæsthesia is required for clearing the mouth of a large number of teeth or stumps, the administration of nitrous oxide and ether becomes a necessity, because the anæsthetist can then be of service in sponging the gums and altering the position of the gag when the patient has been once thoroughly anæsthetized.

In order to give these anæsthetics in sequence to the best advantage, I have designed a simple regulating apparatus which is well adapted for dental work. It consists of a stop-cock of wide calibre, with a collar and inhaling bag to hold an ether sponge capable of fitting the face-pieces of either Clover's ether inhaler or Hewitt's gas apparatus. This latter also fits into the stop-cock for the administration of nitrous oxide with ether during the induction of anæsthesia. The new stop-cock and bag only are therefore required to convert the gas apparatus into a regulating ether inhaler suitable for every type of patient for whom ether is an appropriate anæsthetic. To administer nitrous oxide and ether, the metal collar of the inhaling bag having been detached from the stop-cock, a honeycomb sponge (of the size of an orange) which has been wrung out of warm water should be arranged inside the sponge-cage, and, for an adult patient,  $1\frac{1}{2}$  ounces of ether poured upon it. The handle of the stop-cock is now turned to 'E, off,' and the bag-collar is attached to it by its bayonet catch. A suitable face-piece is then fitted to the proximal side of the stop-cock, and Hewitt's gas apparatus, two-thirds full of nitrous oxide, is fitted to the distal side. When the face-piece is applied, five breaths of nitrous oxide should be given through the valves of the gas apparatus, which should

then be thrown out of action, and re-breathing commenced by turning the upper tap round on its axis. Next the handle of the ether stop-cock should be gently and very slowly moved towards the face-piece. This movement closes the gas orifice as it opens the ether-bag,



so that the patient receives a very gradual increment of ether vapour, whilst his tidal respirations gradually pass from the one bag to the other. When the patient is breathing entirely into the ether the gas-bag is detached and laid aside. Additional ether, when required, can be poured into the filler at the side of the stop-cock. Air can

be admitted in any amount by moving the stop-cock handle back again so as partially or completely to open the orifice to which the gas-bag was first attached. The inhaler can also be used for ether alone, without nitrous oxide, in the same way as a Clover's apparatus, or for ethyl chloride or somnoform, followed by ether, by attaching the ethyl chloride inhaling bag instead of that for nitrous oxide, and proceeding in the manner described above.

H. Bellamy Gardner.

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Several forms of nasal inhalers are used in America, so arranged as to be out of the way of the operator, and intended to remain comfortably *in situ*, without being manually held, for administering either gas alone or mixed with air or oxygen. The gas or mixture is supplied under a pressure which may be a determined one, but for safety a much slighter one must be employed than with the oral continuous 'open' method, as with Coxon's tube. According to W. A. Heckard, a receiver, or 'tank,' of 15-gallon capacity is recommended, with pressure regulator.

#### COCAINE.

E. Suavez, of Paris, perhaps the greatest authority on the dental uses of cocaine injection, reiterates his confidence in it after an experience of more than fifteen thousand cases. Much has been written *pro* and *con* during the year, principally in France and America, but we feel we cannot do better than extract portions of Dr. Sauvez's latest utterances in summing up his views. In a paper before the Canadian Dental Association, reprinted in *B. D. J.*, XXVI., p. 373, and following number, he says:

'We are the better in a position to speak of this in so

far that when, in 1893, we wrote our thesis on "The Best Method of Anæsthesia to Employ in Dentistry," we extolled the use of bromide of ethyl for complete anæsthesia, and two years of further experiments had not yet eradicated a certain fear concerning the use of cocaine.'

After recounting the difficulties and dangers of general anæsthesia, he says :

'If we broach now the exposition of dangers and inconveniences of local anæsthesia, we can affirm that the first are null (no fatal case observed under the use of 23 centigrammes of cocaine, and 3 centigrammes more than suffice for our dental operations), and, as regards the inconveniences, they may be summed up as follows :

'1. Risk of illness : at most, slight vertigo in insignificant proportions and only in patients predisposed thereto ; at any rate, never serious disorders.

'2. In two cases of dental surgery : extraction of wisdom-tooth with trismus, or in complicated operations, such as we define in our memoir, local anæsthesia is contraindicated.

'3. In two other cases, acute arthritis, or abscess, local anæsthesia, for the most part, merely determines attenuation of the pain. Among the numerous advantages presented by local anæsthesia, we lay stress notably on time, tranquillity, and the several facilities offered by cocaine to the operator to accomplish surgical intervention with leisure and steadiness.'

He passes in review the methods of local anæsthesia or analgesia by electricity, refrigeration, etc., and proceeds :

'We are thus forced to bring forward cocaine, or its derivatives, which, in injections, seem to give practical results superior to all other methods of local anæsthesia known at present.

'Practically, cocaine is a local anæsthetic ; from a physiological standpoint it is a general as well as a local

anæsthetic. The complete anæsthesia attributed to cocaine has been much discussed. Research on this subject by Mosso and Albertoni has caused cocaine to be recognised as possessing the characteristics of a general anæsthetic, because of its universal and temporary action on the cells (definition of Claude Bernard); Charpentier de Manez assures us that this is a true characteristic of cocaine, so far as germination and fermentation are concerned. Injected into animals in physiological doses, cocaine determines in them an extreme muscular excitation, followed by an insensibility exclusively of the surface, the deeper sensibility being preserved.

‘One of the most remarkable of the properties of cocaine is its vaso-constrictive action. Let us here only cite the elevation of the blood-pressure. We dwell as well on its action on the centres of thermic regulation—cocaine heightens the temperature (Richet), and on the ocular apparatus (Mydriase).

‘We now approach the dangers which the use of cocaine might offer. In the first place, there is syncope. We show its rarity and explain how easy it is to avoid it by employing the right dose on the reclining patient. The other phenomena observed, sometimes subsequent even to correct injections of cocaine, are slight and insignificant; slight tingling (pin-and-needles) of the extremities and greater loquacity. There is really nothing in local anæsthesia by cocaine approaching the sudden scares which accompany the use of chloroform. In 7,000 cases of anæsthesia by cocaine practised by Reclus, he has not noted the slightest trouble in the physiological equilibrium.

‘Tropacocaine presents an equal degree of toxicity, while its anæsthetic action appears less profound than that of cocaine. See **Tropacocainæ**.

‘Eucaine is a vaso-dilator, its injection is painful, and

it presents a feebler power of anæsthesia, and of a shorter period of duration than cocaine.

‘Phenate of cocaine, insoluble in water, and employed, therefore, dissolved in oil or liquid vaseline, produces nodules, which are long in disappearing.

‘Therefore, the use of chlorhydrate of cocaine appears to us to carry with it all the advantages claimed for the preparations compared to it, as much from the point of view of the anæsthesia produced as by the percentage of possible accidents.

‘With a minimum of 15,000 injections, we cannot register one accident, not even an incident, due to the use of cocaine.’

#### ‘MEDIUM OTHER THAN WATER.

‘The researches that have been made on this point depart from the principle that an injection made in the tissues will be the less dangerous in proportion as its diffusibility is lessened—that is to say, that it should enter as tardily and slowly as possible into the circulatory torrent.

‘It was sought, therefore, to use as a vehicle for the introduction of cocaine, substances such as oil, vaseline, and cacao-butter. After explaining their mode of use, we arrive at the following conclusions :

‘Such means, other than water, used in the transmission of cocaine, have the disadvantage of determining, by their presence in the tissues, all the accidents attributable to foreign bodies. They sensibly retard circatrization, and many of them produce sphacele. From which we conclude that the use of vehicles other than distilled water appear to us to possess only disadvantages, with no profit whatsoever.



‘SOLUTIONS OF COCAINE.—STRENGTH OF SOLUTIONS—  
SCHLEICH’S ANÆSTHESIA—QUANTITY TO INJECT—  
STERILIZATION.

‘Because of the reasons we have given, it is water we choose as a vehicle for chlorhydrate of cocaine. It remains to determine what strength to give this solution. Cocain being a toxic medicament, one should use as small a dose as possible, consistent with its being endowed with sufficient analgesic power. There is general agreement to-day to recognise a 1 in 100 solution as sufficient.

‘The toxicity of cocaine depends, not only on the weight of the quantity of the injected alkaloid, but also on the quantity of water in which it is in solution. The greater quantity of water used, the less inoffensive it is for the same amount of cocaine.

‘For the extraction of a tooth, 1 cubic centimetre of a 1 in 100 solution—that is to say, 1 centigramme of cocaine quite suffices.

‘Schleich employs even a feebler solution: 0·002 gramme, and even 0·001 gramme. But in this case the anæsthesia is illusionary and due simply to the mechanical distension of the tissues; similar results can be obtained by a simple injection of distilled water.

‘Ordinarily, for the extraction of a tooth, we use 1 centigramme of cocaine. Under twelve years and above sixty, we reduce the dose to no more than  $\frac{1}{2}$  centigramme.

‘We make use of fresh solutions, or extemporaneous solutions, or of solutions preserved in sterilized ampoules.

‘PRELIMINARY PRECAUTIONS—POSITION OF THE PATIENT  
—CONTRAINDICATIONS.

‘Here we lay stress on the precautions to be observed: the loosening of any clothes which might in any way

impede respiration ; a horizontal position, or, at any rate, one approaching the horizontal. There are contraindications, as cocaine raises the blood-pressure ; it is contra-indicated for aortics and arterio-sclerous patients.

‘ Because of its depressive action it ought also to be forbidden for anæmic individuals and those debilitated, extremely nervous, or averred neuropathics, and to those worn out with debilitating diseases. Should the patient present a general state which would seem to visibly predispose him to syncope, it were better to abstain.

‘ THE AIM OF LOCAL ANÆSTHESIA FOR THE EXTRACTION OF TEETH IS ANÆSTHESIA OF THE ALVEOLO-DENTAL LIGAMENT.

‘ When an injection of cocaine has been given for the extraction of a tooth whose pulp is exposed, and if, at the very moment of extraction, the pulp be touched with a sound, the patient is conscious of the pain of that touch, with no attenuation whatever, whereas the extraction itself is absolutely painless.

‘ Where, however, the alveolo-dental articulation is inflamed, the pain of extraction is, on the contrary, the greater and more intense, as the arthritis itself is more acute.

‘ Consequently, it must be inferred that the pain of extraction is caused by the tearing of the alveolo-dental ligament, as a matter of fact ; therefore, if the anæsthesia by cocaine is to be effective, it must act on the nerve termini of this ligament.

‘ THE TECHNIQUE OF COCAINE INJECTIONS.

‘ 1. *Instruments*.—As the gum offers quite a resistance to the injection, it is well to use a Pravaz syringe with a needle screwed on. Steel needles, by reason of their rigidity and the delicacy of their vent, are preferable.

‘2. *Sterilization*.—A great many of the accidents of infection attributed to the cocaine are really due to aseptic faults. We keep our syringes in a carbolic solution (5 in 100), with the piston drawn out, so as to keep the body of the pump and the piston-rod constantly in contact with the antiseptic liquid. The needles are to be boiled during at least five minutes, or held in the flame.

‘3. *Asepsis of the Operating Field*.—The mouth to be rinsed with borated water, the gum washed with alcohol.

‘4. *The Injection*.—As the first puncture is liable to be somewhat painful, even with fine needles, we apply to the gum, previously dried, a 10 in 100 solution of cocaine, or else pulverized coryl.

‘To insure the efficacy of the injection, it must be made at the level of the mucous membrane, which adheres closely to the periosteum, and consequently not too near the neck, neither too near the vestibulary *cul-de-sac*.

‘The syringe, armed with its needle and held like a pen, is forced into the gum, not deeply, within the derma, at a point situated about equidistance between the fresh edge of the gum and the presumed spot where the point of the root should be, obliquely in reference to the median region of the maxillary. A sufficient resistance is felt when injecting, and bit by bit the mucous membrane whitens under the influence of the cocaine.

‘One can be sure that the anæsthesia will be excellent if the piston pushes hard. If the liquid enters without resistance, it shows that the injection has been made in the cellular tissue, and the formation of an œdemous bulb will be determined. It were better, then, to withdraw the needle and begin again. Several injections are necessary—at least two—in order to surround the tooth with an anæsthetized zone.

‘Adrenaline, added to cocaine, has given the best results, from the local as well as from the general point of view (Batlin and de Nevreze).

‘MIXED METHOD OF LOCAL ANÆSTHESIA—COCAINE AND REFRIGERATION.

‘The successive use of cocaine and refrigeration renders the best services, whether to render painless the introduction of the needle, to modify a fungous gum, or to supplant a difficult or impossible injection in certain regions.

‘After exposing all the indications, we conclude that, for us, this mixed injection of cocaine and refrigeration, is the best method of local anæsthesia.

‘CONCLUSION.

‘1. Complete anæsthesia, because of the dangers and inconveniences it entails, should be the exception in dental surgery. On this fact is based the importance of local anæsthesia.

‘2. Of all the methods of local anæsthesia actually known, cocaine seems to give the best practical results.

‘3. Chlorhydrate of cocaine appears to us superior to all the other preparations which compete with it.

‘4. Distilled water is the best vehicle proposed for the transmission of cocaine.

‘5. In general practice, a satisfactory anæsthetic is obtained, and all accident is avoided, by the use of 1 cubic centimetre of a fresh solution, in distilled water, of chlorhydrate of cocaine at 1 in 100.

‘6. When the injection exceeds 1 centigramme of cocaine, a horizontal position is called for.

‘7. In the extraction of a tooth, it is almost exclusively the rending of the alveolo-dental ligament that causes the pain.

'8. The anæsthesia is entirely dependent upon the manner of operating the injection. The after-effects depend upon the asepsis.

'9. After the operation, the patient should remain reclining one-quarter of an hour for 1 centigramme of cocaine, from two to three hours for a larger dose.

'10. Well-executed refrigeration constitutes a good local anæsthetic, but only for very superficial operations.

'11. The mixed method (cocaine injection and refrigeration) constitutes the best local anæsthetic.'

To the eucaine groups are added 'anæsthesin' and its sulpho-phenic derivative called 'subcutin' (*see l'Odon-tologie*, XXXII., p. 522), tropacocain, acocin, nirvanin, holocain, and others about which not enough is yet known to justify trial in routine work. In all cases normal salt solution as a vehicle is found to much diminish local disturbance, and when the alkaloid employed is not incompatible with adrenalin (as in the case of stovain) a small addition of this seems to lengthen and localize anæsthesia and control bleeding. The official injection preserved by salicylic acid is said to be less satisfactory than when chloretone is used, most of the proprietary anæsthetic solutions containing from 1 to 2 per cent. of this.

It has been stated that a mixture of equal parts of cocain and beta-eucain has a stronger and more lasting action than either salt alone. According to an exhaustive treatise on these alkaloids communicated to the Grenoble Congress in 1904 by Jules Klein, the following combination gives the maximum effect with the smallest toxicity, and keeps indefinitely :

Distilled water	-	-	-	-	100.00
Common salt	-	-	-	-	0.60
Tropacocain hydr.	-	-	-	-	0.10
Stovain hydr.	-	-	-	-	0.10
Cocain hydr.	-	-	-	-	0.05
Subcutin	-	-	-	-	1

It has been strongly recommended to give internally a drop of nitro-glycerine solution a minute before injecting cocain.

*Statistical Study.*—*M. A. Schamberg* sent a circular to 300 well-distributed dentists in U.S., which brought 132 replies as to personal use and experience of local anæsthesia. Seventy-seven per cent. of those responding advocated employment, the large majority favouring aqueous solution of cocaine or beta-eucaine injections, either alone or with other drugs. One-eighth grain of cocaine hydrochlorate was thought safe from toxic symptoms in general.

**Anæsthesia, Electrical**, by high-frequency currents or by static charge, has been sensationally announced at various times lately, but no serious researches have been published upon systematic procedure.

**Anæsthesia, Pressure**, so called, for the comparatively painless extirpation of the pulp, or desensitizing dentine, is, in fact, a mechanical cataphoresis, which see; also **Pressure Anæsthesia**.

**Anestile**, a mixture of ethyl and methyl chlorides, which may be called somnoform minus ethyl bromide, is a good spray refrigerant, but for inhalation has the disadvantages of a volatile mixture, without any obvious advantage over ethyl chloride. Caution must be observed in the use of the cautery after spraying. See **Local Anæsthesia**.

**Anise.** See **Mouth-Wash**.

**Anodyne Colloid.** See **Amyl Colloid**.

**Antidotes** are, fortunately, rarely called for in ordinary dental practice; but as, nevertheless, a few potent corrosive or toxic agents are frequently used either in treatment or sterilization, we venture to insert the usual suggestions in case of misadventure.



To acid, carbolic, etc. : albumin, alcohol, oleum camphoratum, turpentine.

To acids, mineral : ammonia, chalk, milk, sal volatile, soap and water.

To arsenic : ferric chloride, magnesia.

To chloroform : amyl nitrate, ether.

To cocain, etc. : ether, amyl nitrate, chloroform, coffee.

To formalin : ammonia, sal volatile.

To iodine, iodoform : starch, demulcents.

To mercuric chloride : albumin, milk, ether, opium.

To silver nitrate : common salt, demulcents.

**Antinosin**, a phenol-phthalein derivative of soda ; a blue powder, very soluble ; has been recommended as an antiseptic mouth-wash in stomatitis.

**Antisepsin**. Monobromacetanilide is but a feeble antiseptic, but has been used for facial neuralgia in doses of 5 to 10 grains, dissolved in water internally.

**Antiseptic** *versus* **Aseptic** methods of treatment and operating, as we mentioned last year, were very thoroughly discussed at the meeting of the B. M. A. at Oxford, and the consideration of technique occupies continuously a considerable portion of the medical and dental press. There is naturally a tendency to elaborate the corresponding purely dental aspect of surgical procedure, possibly to excess. The subtle though very real distinction between the exclusion of the pathogenic germ and its chemical destruction, though not to the same degree pertinent to dental operations, nevertheless cannot be ignored. Though much of our work is largely mechanical, and done in a cavity which is physiologically outside the body, there is always the chance of accidental penetration, when easily insured aseptic conditions will avoid infection. But there are, on the other hand, so many dental operations not only where septic conditions already prevail, but where merely mechanical cleansing is impossible, that most thorough

and efficient antiseptic (that is, bactericidal) precautions are of particular importance. Hence the properties and potencies of chemical or physical antiseptics and their effect on the vitality of living tissue are of peculiar interest. Experiments on purely bacteriological lines as to the resistance of bacteria to various reagents throw little light upon the real problem as to how the relation of microbe or parasite to live tissue can be modified without the destruction of both.

It is impossible to consult a dental publication at home or abroad without finding copious allusions to antiseptics and asepsis, very divergent views being expressed upon the value of the chemical action of so-called antiseptic substances. Perhaps the best and most thorough attempt at an examination of the subject is still what we referred to last year in the researches made into the 'Inhibition of Dental Caries,' by G. E. Hunt and C. R. Jackson (*D. Cos.*, XLVI., p. 818). Several series of tests, long enough to obtain a fair average, in the mouths of both experimenters were made upon the comparative action of formalin, Thiersch's solution (which see), benzoic acid, salicylic acid, and mercuric chloride. Also with various mixtures of these and other agents.

The technique of these tests, some three hundred in number, was briefly as follows: The teeth and gums were cleansed with the thread and brush after the noon-day lunch, fully as carefully, or perhaps with more care, than the average good patient would bestow upon this operation. Approximately three hours thereafter the mouth was thoroughly rinsed for one minute with 15 c.c.—about  $\frac{1}{2}$  ounce—of the solution selected for that test. A five-minute interval was then allowed, in order that the saliva might again bathe the teeth and gums. The mouth was then rinsed with 15 c.c. of sterilized distilled water and a culture made in nutrient gelatin, or agar, from

$\frac{1}{6}$  c.c. of the spittle; this we will call Culture *A* of that experiment. An hour later the mouth was again rinsed with 15 c.c. of sterilized distilled water, and another culture made from  $\frac{1}{6}$  c.c. of the spittle; this we will call Culture *B* of that experiment. The culture dishes were kept until the media liquefied from colony development, or until, without liquefaction, repeated observations detected no further development. A careful record was, of course, kept of each experiment.

The solutions used were of the following strengths: Salicylic acid, 1 : 200; formalin, 1 : 200; Thiersch's solution, full strength; benzoic acid, 1 : 200; mercuric chloride, 1 : 2,500, and salicylic acid, 1 : 300; mercuric chloride, 1 : 3,000, and salicylic acid, 1 : 400; mercuric chloride, 1 : 3,000; mercuric chloride, 1 : 2,500.

A number of experiments were also made with various proprietary mouth-washes, merely for the gratification of curiosity. None of those tried developed valuable inhibitory action.

No special interest would attach to a recital of the results in each case, nor have individual cases any great scientific value. The technique employed was selected as adapted to give results of direct value when a number of experiments with the same solution were considered together.

To very briefly summarize the results: Formalin was disappointing, not giving better results than benzoic acid. Salicylic acid and Thiersch's solution were little better, only mercuric chloride showing a very definite regular action. This in aqueous solution of 1 : 3,000 was only feeble, but in 1 : 2,500 of water produced a definite, certain, and regular inhibition of considerable duration. No increased effect was produced by the addition of other chemicals, but a combination was arrived at which agreeably covered the objectionable taste of the chloride. A careful estimate is calculated of the probable total amount

of the substance which might possibly be absorbed day by day into the general system, working out at less than the hundredth part of a grain. The solution was used three or four times daily for eight weeks without any perceptible general physiological effects. *See Mouth-Washes.*

**Antiseptic Mouth-Wash for Infants.** *J. H. Mackee* states that in the treatment of infantile diarrhoea a good antiseptic mouth-wash should always be used before feeding, especially when there is vomiting. *See Mouth-Washes.*

**Antiseptics in Operative Dental Practice.** This heading has served for innumerable articles and papers upon what may be more properly described as the precautions for asepsis, or sterilization. So far as the treatment of instruments and materials are concerned, the use of bactericidal agents are merely doubtful adjuncts to sterilization by heat; and as regards the living tissues of the body, dependence must be placed upon ultra-thorough mechanical cleansing and careful attention to pathological conditions. *See Sterilization.*

### Appointments:

#### DENTAL SURGEONS ATTACHED TO THE GENERAL HOSPITALS IN LONDON.

##### *Charing Cross Hospital and School of Medicine.*

Consulting Surgeon-Dentist: John Fairbank, M.R.C.S.  
Dental Surgeon: J. F. Colyer, M.R.C.S., L.R.C.P.,  
L.D.S. Anæsthetists: C. Carter Braine, F.R.C.S.;  
R. W. Collum, M.R.C.S., L.R.C.P.; V. Corbould,  
M. D. Brux., and W. M. Anderson, M.R.C.S., L.R.C.P.

##### *Hospital for Diseases of the Throat, Golden Square.*

Dental Surgeon: W. H. Dolamore, M.R.C.S.,  
L.R.C.P., L.D.S., attends on Thursday mornings at 9.30.

*King's College Hospital, Lincoln's Inn Fields, W.C.*

Dental Surgeon : Professor Underwood, M.R.C.S., L.D.S. Assistant Dental Surgeon : C. E. Wallis, M.R.C.S., L.R.C.P., L.D.S. Anæsthetist : Dr. Silk. Attendance on Tuesdays and Thursdays at 10 a.m.

*London Hospital, Whitechapel, E.*

Dental cases attend at 9 a.m. on Mondays, Tuesdays, Thursdays and Fridays. Dental Surgeons : Mr. F. M. Farmer, L.D.S., at 9 a.m., Monday and Thursday ; Mr. W. H. Dolamore, L.R.C.P., M.R.C.S., L.D.S., at 9 a.m., Tuesday and Friday. Provision is made for a certain amount of filling, etc., as well as for extraction of teeth.

*London (Royal Free Hospital) School of Medicine for Women,  
8, Hunter Street, Brunswick Square, W.C.*

Dental Surgeon : Tice F. Budden, M.D., B.C., B.A.Camb., M.R.C.S., L.R.C.P., L.D.S. No fixed days and hours of attendance.

*The London Throat Hospital, 204, Great Portland Street, W.*

Dental Surgeon : A. B. Alexander, L.D.S., Mondays, 11 a.m.

*The London Temperance Hospital, Hampstead Road, N.W.*

Dental Surgeon : A. B. Alexander, L.D.S., Mondays, 12 noon.

*The Middlesex Hospital, W.*

Dental Surgeons : William Hern, M.R.C.S., L.D.S., Fridays, 9.30 a.m., Wednesdays, 9 a.m. ; Walter Salmon Nowell, M.A. Oxon., L.R.C.P., M.R.C.S., L.D.S., Wednesdays, 9 a.m., Mondays, 9.30 a.m.

*St. Bartholomew's Hospital, E.C.*

Dental Surgeons : Mr. W. B. Paterson, F.R.C.S., L.D.S., Friday, 9 o'clock ; Mr. J. Ackery, M.R.C.S.,

L.D.S., Saturday, 9 o'clock. Assistant Dental Surgeons : Dr. Austen, Tuesday, 9 o'clock ; Mr. R. C. Ackland, L.R.C.P., M.R.C.S., L.D.S., Friday, 9 o'clock.

*St. George's Hospital, Hyde Park Corner.*

Dental Surgeon : Norman G. Bennett, M.A., M.B., B.C. Cantab., L.R.C.P., M.R.C.S., L.D.S. Assistant Dental Surgeon : Frank Morley, L.R.C.P., M.R.C.S., L.D.S., Mondays and Fridays at 11.30 a.m.

*St. Mary's Hospital, Paddington, W.*

Dental Surgeon : Morton A. Smale, M.R.C.S., L.D.S., Wednesdays and Saturdays at 9 a.m.

*St. Thomas's Hospital, Westminster Bridge Road.*

Dental Surgeon : J. G. Turner, F.R.C.S., L.D.S., and G. L. Bates, M.R.C.S., L.D.S. Mondays, Tuesdays, Thursdays, and Friday mornings at 10 o'clock.

*University College Hospital, Gower Street, W.C.*

Dental Surgeon : Sidney Spokes, M.R.C.S.; attendance Tuesdays and Fridays at 9.30 a.m.

*West London Post-Graduate College, West London Hospital, W.*

Dental Surgeon : Mr. H. Lloyd Williams, M.R.C.S., L.D.S. Out-patients are seen on Tuesdays and Fridays at 9.30 a.m.

*Westminster Hospital, S.W.*

Dental Surgeons : Mr. Charles W. Glassington, M.R.C.S., L.D.S., Wednesday and Saturday at 9.15 a.m. ; Mr. Ernest Gardner, L.D.S., Tuesday and Thursday at 9 a.m.

**Archiv für Zahnheilkunde.** *See Journals.*

**Archives de Stomatologie.** *See Journals.*

**Archives Nationales de Stomatologie et d'Art Dentaire.** *See Journals.*



**Argenti Acetas and Argenti Citras** (the latter also known as **Itrol**), both soluble white powders, have been used in dilute solutions as substitutes for the nitrate, where indicated as being less irritant and caustic.

**Argenti Fluoridum.** *See Tachiol.*

**Argenti Lactas.** *See Actol.*

**Argenti Nitras.** Interest in silver nitrate has been revived since we described Dr. Bryan's method of using it in the last issue, by the paper read at the annual meeting of the B. D. A. at Southport by *W. D. Miller* upon the 'Preventive Treatment of the Teeth, with Special Reference to Nitrate of Silver' (*B. D. J.*, XXVI., p. 641). A series of careful experiments and sections made of human and animal teeth brought him to the conclusion that enamel was unaffected in any way by silver nitrate, which could exert no protective or other effect upon the underlying dentine, but that 'the results obtained confirm the impression which generally exists, that nitrate of silver applied to cavities of decay has a more or less pronounced effect in arresting the progress of the disease. The protection offered is naturally only partial, and varies in degree in different cases. Occasionally the nitrate failed completely to exert any protective action, as was observed in a few of the cases where the treatment was applied to the neck or root of the tooth. He was not able to find any reason for this exceptional action.

To quote his conclusions: 'The question here arises: How does the nitrate of silver effect the protection of dentine against acids? The most natural explanation seems to be that the precipitate of metallic silver in the superficial layers of the dentine forms a barrier more or less impermeable to acids.

'To put this supposition to the test the tissue treated with the nitrate of silver was kept in the dark, so as to

prevent the reduction of the nitrate from taking place. Naturally, no discoloration of the surface treated was produced in this case. The protective action, however, remained the same, and thereby the untenableness of the above explanation seems to be sufficiently proved.

‘As a second possible explanation the idea suggests itself that the protective action of the nitrate is due to a coagulation of the contents of the dental tubules. Microscopic sections present appearances which support this view.

‘In order to prevent the unsightly discoloration of teeth treated by the nitrate of silver, I first soaked the tooth in a concentrated solution of common salt, then applied the nitrate in the usual way, and thereupon the salt solution again, the idea being to produce a precipitate of the insoluble chloride of silver in the superficial layers of dentine. The attempt succeeded, and no discoloration took place. Unfortunately, however, teeth treated in this way showed no increase of resistance to the action of acids; this agrees with the conclusion arrived at above, that the protection afforded by the nitrate of silver is not due to the formation of an insoluble, inorganic precipitate in the tubules.

‘Among other salts of silver the *argentum colloidal*e and protargol were tested as to their protective action. The results were completely negative.

‘(2) Does nitrate of silver act by stimulating the dentinal fibrils, and through them the pulp, thereby causing a solidification of the dentine and opposing a barrier to the progress of caries?

‘*A priori*, I am very much inclined to doubt that any medicament applied but a few times to the surface of the enamel affects the pulp in any way whatever, since neither the mechanical abrasion nor the chemical disintegration of the enamel has any effect upon the underlying

dentine until the process has well-nigh reached the dentine itself.

‘These results leave much room for doubt as to whether the advantage gained by the use of nitrate of silver for prophylactic purposes (if there is any at all) is sufficient to offset its very considerable disadvantages, both as to its escharotic and poisonous properties, as well as to the discoloration produced by it.

‘It is safe to say, however, that the nitrate of silver leads to the formation of secondary dentine in as far as it converts the acute into the chronic form of decay. The medicament consequently has a double action, in that it renders the decalcified dentine more or less impermeable to acids, and also facilitates the interposition of a layer of secondary dentine on the part of the living pulp.’

The discussion upon the paper revealed that many practitioners depended very much upon the inhibitory power of silver nitrate in caries, especially in the treatment of children’s teeth. Cornelius Robbins said the late distinguished chemist, Matteu Williams, used to employ it empirically in treating toothache in men under him at a large iron-works. H. W. Norman attributed to Mr. Matheson the method of mixing it with equal parts of Fletcher’s dentine for applying to sensitive decayed cavities, covering with simple cement.

As we mentioned last year, it has for some considerable time been used in the most heroic fashion by *L. C. Bryan*, as reported by him at Madrid, for what he considers the total inhibition of caries. Using a 40 per cent. solution at intervals of six months, his method consists in isolating single teeth with the rubber dam, and making repeated applications of the solution, allowing each application to dry before making another. The medicament is forced and worked into sulci and fissures, and carefully applied to approximal as well as other

surfaces. He states that no discoloration follows its application to sound enamel other than can readily be removed with pumice. Exposed dentine, due to leaky fillings, developmental imperfections, caries, or other causes, will, of course, experience the well-known reactions. Dr. Bryan makes certain claims for its action on tooth-structure, based on his clinical experience, that are certainly important if true. He believes he has observed a stimulation of the odontoblastic layer resulting in nutritive changes in the dentine, leading to a better physiological tone. He does not definitely claim to produce enamel changes, but implies a hardening even of that structure. He does profess to believe that three treatments a year from the time of eruption of the teeth will inhibit caries absolutely—this without any reference in his paper to mechanical cleansing. It is, however, only fair to suppose that the importance of cleanliness is fully appreciated by Dr. Bryan.

Some years ago L. P. Bethel, of Columbus, Ohio, permeated the entire dentine of pulpless teeth with silver nitrate influenced by the cataphoric current; but its penetrative power by osmosis is very limited, owing to the impenetrable character of the coagulum produced by it when brought into contact with organic matter. (For further details, see *Transactions American Dental Society of Europe*, 1904, or *D. Cos.*, XLVI., p. 820.) Unfortunately, the stains of silver on the teeth can only be mechanically removed, in which case, if it is used for desensitizing exposed dentine, its effect is rapidly neutralized, any efficient chemical bleachers being absolutely prohibitive for use in the mouth.

**Army Dentistry.** It will be remembered that the War Office, on the conclusion of the South African War, appointed two army dental surgeons, one for the Aldershot Command and the other for the Home District.

On February 18, 1904, Sir Carne Rasch, in the House of Commons, asked the Secretary of State for War whether he had any official reports upon these appointments, and whether he would state if it were proposed to increase the number of them. Mr. Arnold - Forster replied: 'Owing to the satisfactory nature of the reports on the employment of dental surgeons, it has been decided to employ eight dentists with the troops serving at home stations.' Early in March the War Office advertised these appointments, the pay offered being £1 per day, and travelling allowances as for a Lieutenant of the Royal Army Medical Corps. It is stated that over one hundred applications were received. The United Kingdom was divided into eight large districts—five in England, two in Ireland, and one in Scotland (with the North-Western District of England). Inadequate as was the number of these appointments, there is reason for believing that the experiment is favourably reported upon, and it is hoped that the establishment will be increased. There is at present no provision for that portion of the army which is serving abroad.

The work of army dental surgeons is purely operative, and in peace time is confined to the rank and file, neither officers nor the wives and families of the troops being treated. Dentures are made under contract by local dentists in the various garrisons, and are supplied gratuitously to (a) warrant officers and non-commissioned officers of the rank of sergeant and above who have, in the opinion of an army surgeon, incurred such loss of teeth as to cause their discharge as invalids, but who will, by the provision of artificial teeth, be rendered medically fit; (b) warrant officers, non-commissioned officers and men who have, as the result of wound, injury, or disease directly attributable to active service, incurred such loss of teeth as has rendered it necessary to invalid them out

of the service; (c) warrant officers, non-commissioned officers and men who, as the result of wound or injury, but not disease, have incurred loss of teeth not sufficient to cause their discharge as invalids.

In November, 1904, the War Office decided upon a scheme for supplying dentures on the gradual payment system to recruits and others who are ineligible for the supply of these appliances gratuitously. A letter, signed by the Secretary to the Army Council, was addressed to all Commanding Officers, stating that the scheme was to be regarded as a tentative measure, and requesting that reports be furnished as to its practical working. The reason for fixing the maximum expenditure at £3 was understood to be that if a man had lost so many teeth that they could not be replaced for this sum, it were best to invalid him out of the service.

This is interesting to record as a matter of history, though, as our readers and all the world are well aware, the scheme proved unworkable, as recruits, after joining, in most cases refused to have extractions made which were often necessary. In the end, the part of the service regulations relating to enlistment subject to dentures has been suspended.

In December the Government issued the 'Report on the Medical Arrangements in the South African War,' by Surgeon-General Sir W. D. Wilson, K.C.M.G., late Principal Medical Officer of the South African Field Force, which contains the following important recommendation, made by a committee composed of Royal Army Medical Corps officers who were actually in charge of or employed in general hospitals during the campaign:

'That a *civilian dental surgeon* be appointed to every general hospital on active service. His duties should include stoppings, extractions, and mending of plates, but not to supply new sets of artificial



teeth. Much of the inefficiency during the recent campaign was caused by officers and men being unable to masticate their food owing to dental caries, thereby rendering them unfit for field service.'

An interesting fact in connection with this recommendation is that dentists are the only specialists whom the committee suggest shall be obtained from outside the R.A.M.C. They express their opinion that all others shall be officers of the corps who have specialized some particular branch of medicine or surgery. The training of the dentist of to-day must necessarily be a long process, and we feel sure it will be the universal opinion of the profession that the committee have acted wisely in recognising the fact that the necessary knowledge cannot be obtained by army medical officers in a short course of instruction at a dental school.

The employment of dentists with an army in the field is, of course, absolutely necessary, but it is even more important that an adequate number of army dental surgeons should be employed in peace time, so that caries may be checked in its early stages.

Upon the dental army and navy services of the world, in a special report made after inquiries addressed to all the civilized Powers by the late lamented Dr. Frank, of Vienna, he says :

'In the greater number of States the treatment is limited to extraction effected by the army or navy surgeon. The military authorities only permit treatment by civil dentists for artificial appliances when the loss of teeth has occurred in service from wounds.'

Official dentists do not exist in any Continental army, although Germany appointed a well-equipped dentist, with the rank of a First Lieutenant, to its expeditionary force to China, but only as a military aid ; and in Austria, on

March 15 last year, a new institution was opened for dental hygiene. Its purpose is to give instruction to army surgeons, as well as undertaking the treatment of soldiers.

As far as the army is concerned, our own country compares very favourably with others since the recent appointment of eight official dentists, who are now doing regular work at the eight chief military centres, as well as visiting the lesser camps.

Dr. Frank continues: 'America possesses to-day, thanks to the National Dental Association, an institution which will serve as a model to all other nations, and which insures to every soldier in the army, wherever he may be, the treatment and special care appropriate to his mouth and teeth. We hope that the proposal of Pettus, which is also the work of this Association, and whose object is to endow the American Navy with the same organization, will soon become an active law, and that then the injustice done to our *confrères* as regards their rank will be removed. The law endows the American army with thirty dentists, who are subjected to a severe examination before their appointment. They are appointed by contract for six years, without rank, being paid £30 per month (including fees). They are put under the command of the Director of the Army Medical Department, and can, if the service permits, be dismissed upon his request, preceded by an inquiry, at any time by the Commander-in-Chief. They may wear the uniform of an Assistant Major (rank of First Lieutenant, with distinctive marks in silver). These dentists are not attached permanently to any corps. They are under the orders of the medical staff, and are appointed to their posts by the Director-General. Then the Commandant of the garrison town places the necessary implements and materials at their disposal. An infirmary nurse is appointed to them as an assistant. The operating-rooms and the local

accessories are assigned them by the Commandant, and when necessary they are installed at the military hospital. The military dentist must give the officers and men the necessary treatment, but their families have no claim to gratuitous services. The official hours of daily work are from nine to four o'clock.' (See Report of the Committee on Hygiene and Public Health of the International Dental Federation; *also B. D. J.*, XXV., p. 850.)

As to the provision made for our own army dentist, the equipment of each of the centres is excellent for its purpose. An hydraulic pump chair with bracket-table and spittoon fittings is provided. The dental cabinet is an all-metal one, and the equipment is of an equally aseptic nature as regards the materials used in construction. All germ-holding upholstery, etc., are abolished. Everything is in plain polished metal, capable of easy and rapid sterilization.

A remarkable article appeared in the *Journal of the Army Medical Corps* for August, 1904 (III., p. 188), as an editorial signed by Major T. McCulloch, M.B., C.M. Glas., the Deputy Assistant Director-General, which was reproduced in *B. D. J.* (XXV., p. 768).

**Army Dental Requirements.** As a dental practitioner who also served during the late South African War, the opinions of Captain A. F. A. Howe, from his experience (*B. D. J.*, XXIV., p. 772), are of importance. Captain Howe says :

‘Until the middle of the last century the army was mainly recruited from the agricultural population, which provided men of naturally robust physique. Nowadays a very large percentage of recruits are town-bred, and not to be compared, as regards physical fitness, with the husbandmen of the old days. This lack of really sound health and strength manifests itself in the imperfect condition of the teeth of so many of the men who present themselves

for enlistment, and are consequently rejected for "loss or decay of many teeth."

'In 1901, 2,049 men were totally rejected owing to "loss or decay of many teeth." In addition, seventy-one men who had been passed as fit were discharged from the army within three months of enlistment, on the ground that their teeth were not in a sufficiently good state to last for even the short period of service for which men are now enlisted.

'The Army Regulation as to the rejection of the rank and file for "loss or decay of many teeth" is founded on common-sense principles. There is no hard-and-fast rule as to the number of good teeth a man must have, but it is left to the surgeon on the recruiting staff to say whether a man has enough to last for his term of service with the colours. At present the army surgeon has to decide this point, but it is really the work of a *dental* surgeon.

'Roughly speaking, about 50,000 per annum are enlisted, and each man on joining must have the majority of his teeth in good condition.

'Should a soldier's teeth commence to decay, nothing is done for them until they ache, and then they are extracted, the operation usually being performed by an officer of the R.A.M.C.

'What is the result of this policy of extraction? A man joins the army with a serviceable but not necessarily perfect set of teeth. From time to time some of them decay, and are extracted. At the end of his period of service with the colours he is transferred to the Reserve; a national emergency arises, the man presents himself, and is rejected because he has an insufficient number of teeth! There were many such cases when the Reserve was called up in 1899.'

His main conclusions are:

'The absolute necessity of a policy of conservation throughout the whole of a man's service.

‘There should be a Staff Dental Surgeon at the War Office under the Director-General of the Army Medical Service, to whom he would be responsible for the administrative arrangements incidental to the inauguration and continuous supervision of this reform. He would also be available for consultation as to the dental fitness of officers presenting themselves for medical examination.

‘In all large garrisons there should be specially appointed dental surgeons, whose time would be *exclusively* occupied in attending to the troops.

‘In the smaller military stations, such as regimental depots, arrangements should be made with local practitioners to attend at the barracks as often as might be necessary.’

Last year Captain Howe went to Canada to inquire into and report upon the dental provision made for the forces in the Dominion. *See Canada.*

An editorial article upon the duty of the State to the services in this matter appeared in the *B. D. J.*, XXVI., p. 22. Another, largely quoting and commenting upon a report by Sir W. D. Wilson, K.C.M.G., to a Committee of Royal Army Medical Corps officers who served in the South African war (XXVI., p. 153), and summarizing the views of the late Principal Medical Officer of the South African Field Force, says:

‘From the context it would appear that dentists are the only specialists whom the Committee think should be drawn from beyond the ranks of the Royal Army Medical Corps. It is their expressed opinion that it is advisable for all other specialist appointments to be held by officers of the corps, and we are sure that the profession will agree with their tacit recognition of the fact that the scope of our work is so large as to preclude all possibility of anything more than its rudiments being acquired by army surgeons in the course of a few weeks’ study at a dental school.

‘It is, however, undeniable that the peculiarities of army work cannot be mastered in a year, and the action of the Government in fixing twelve months as the term of engagement for the eight army dental surgeons appointed last year is inexplicable. To obtain the best results service appointments should be made permanent, so that those employed could regard the certainty of a pension as compensation for the lesser immediate remuneration, as compared with private practice. A probationary period of twelve months would not be unreasonable, but the principle of year-to-year appointments is unsound.’

**Army Dental Corps of the United States.** The number of dental surgeons in service is thirty, the limit allowed by the act of Congress approved February 2, 1901.

Regarding the prevalence of dental and oral diseases among the troops, Dr. John S. Marshall, Supervising Dental Surgeon, reaches the conclusion that it is due to excessive physical and mental strain. He has given due consideration to the important part which the teeth perform in the maintenance of the general health, and with this purpose in view has taken measures to instruct the enlisted men upon the necessity of properly caring for the teeth and mouth.

An interesting paper, read by Dr. Marshall at the Congress at St. Louis last year, is reproduced in full in the *Dental Surgeon* (I., No. 10, p. 155 *et seq.*) from the *D. Cos.*, with latest statistics to July, 1904.

**Arsenical Dressings**, as we said last year, for pulp extirpation, have for so many years been extensively used in routine conservative treatment that, not unnaturally, modern systematic record and publicity increasingly reveals the dangers and complications which must inevitably accompany the employment of so potent an agent. But although it is already evident that there is somewhat less arsenic used in favour of other surgical procedures, such as cocaine



pressure or cataphoresis, the conviction expressed by some that its use should be entirely superseded is hardly justified by the facts. Probably the commonest operation of this class is a temporary application of an arsenical preparation, followed by a dissolving or mummifying medicament, with but partial mechanical removal of the changed pulp tissues. Unfortunately, there is evidence that many of these cases eventuate in alveolar necrosis, with loss of teeth and considerable hard tissue from inflammatory processes and exfoliation. On the other hand, this rarely, if ever, occurs when at the earliest possible opportunity after arsenicalization all of the poisoned structure is removed before the pericementum and exterior tissues can be infected.

Undoubtedly too much reliance has been placed upon the supposed inhibition or localization of the arsenical destruction by the anti-putrefactive effects of hardening mummifying preparations permanently sealed in. That the chemical combination of arsenious compounds with the pulp elements is so weak and loose that widespread diffusion and penetration may continue for a long time has been clearly demonstrated.

Just as pathogenic organisms can apparently be harmlessly conveyed by a living pulp to deeper parts, so probably the unstable proteid arsenical combinations are not limited to the place of formation and original point of application of a 'nerve paste.'

But as we cannot yet depend upon the anæsthetic surgical procedure in many cases, we are justified, by abundant experience, in the careful and prudent use of arsenic when its fairly complete removal from the sphere of further action is feasible.

From certain considerations of physiological chemistry, it is not improbable that there is greater safety, though more doubt, in a careful antiseptic capping, or the almost

infinitesimal arsenic-cum-creosote 'immediate treatment' and magic single application cases, than where arsenic *in situ* is followed up and 'precipitated' from its organic combination by astringent or so-called embalming agents. Simple putrefactive changes are more amenable and less disastrous than the necrosis arsenicalis. It should be noted that our official Acidum Arseniosum is now in the new U. S. P., called Arseni Trioxidum.

Arthur, S. See **Manufacturers, etc.**

Ascher's Artificial Enamel. See **Cements.**

**Asepsis.** One of the latest and most comprehensive monographs upon the practical technique of dental aseptic surgery was an interesting paper read before the Austrian Dental Society at Vienna on May 4, 1904. It is fully reported and illustrated in the *Viertel. für Zahnheilkunde* for July (XX., p. 385).

An excellent practical paper upon many points in practice by *W. H. Goodman*, of Exeter, is in *B. D. J.* (XXVI., p. 853), in which some details may be said to be advocated of an extreme measure. For instance, the author keeps such things as forceps immersed in a solution until wanted. He says:

'The solution I use for this is 3 per cent. lysol. Lysol has many advantages which should commend it to the dental surgeon. It is water soluble in any proportion, and it does not rust or corrode steel or nickel; in fact, it is an excellent cleansing agent. I have brought with me to-day a pair of steel forceps (not plated) which have been constantly immersed in this solution for more than twelve months, and you will fail to detect the least sign of corrosion. Lysol also acts as a lubricant to the joints, and is also very useful for the pistons of hypodermic syringes. Instruments used in the preparation of cavities, burs, etc., should be carefully cleansed with running water, and immersed in antiseptic solution before using again.

Corundum wheels should also receive a similar treatment.'

The question of aseptic technique was instructively discussed by *W. Guy* before the Annual General Meeting of the B.D.A. at Brighton (*B. D. J.*, XXIV., p. 573). The author, who dealt with hospital conditions and the moral effect on students as influencing their ideals, strongly condemned the ordinary cabinets and general furniture usually provided for dental surgeries as rendering anything approaching to aseptic conditions impossible. He insisted upon a somewhat elaborate routine for the disinfection of hands, instruments, and all materials used as a part of the instruction of the young practitioner.

*Walter Coffin* described his attempts to render quite unobjectionable the ordinary and frequently expensive accustomed operating cabinets in general use by simply removing all cloth and other textile fabrics, baking at a high temperature the constructional parts of wood, and treating them to a bath of melted paraffin wax, which would be absorbed and produce a surface which could be washed and cleansed by many efficacious antiseptic solutions. He found that at a small cost familiar, convenient, and expensive cabinets could be made to conform to the most stringent requirements.

*See also Antiseptics, Sterilization, etc.*

**Aseptic impression materials.** Considerable stir was made a year ago in the press respecting the dangers attending the use of impression materials a second time, the allegation being that infection could be conveyed from one mouth to another, and that the compositions used were not capable of being sterilized. *K. W. Goadby* has shown that new impression material is not aseptic, and that suitable heating in water is sufficient to perfectly sterilize.

**Aseptol.** Under this and other fancy names has been largely sold a 33 per cent. solution of acidum sulphocarboicum,

or sozolic acid, a very strong and active antiseptic and disinfectant. In 3 per cent. solution it has been praised for use in gingivitis and pyorrhœa.

**Ash Sons and Co., Limited** (Claudius). *See* **Manufacturers, etc.**

**Ash's Quarterly Circular.** *See* **Journals.**

**Assistance Publique** of Paris. As one of the first experiments in State or National Dentistry, the establishment of Dental Surgeons to Hospitals under the control of the Assistance Publique of Paris is of interest. Candidates must at present be Doctors of Medicine of three years' standing, who have attended two years' practice of a dental hospital. There is a practical examination, and such appointments are to be vacated at the age of sixty-five.

**Associations.** *See* **Societies.**

**Astral Cement.** *See* **Cement.**

**Atomic Weights.** The latest determinations of the more recently-discovered elements are as follows :

			O. as 16.	H. as 1.
Argon ...	...	...	39·9	39·6
Columbium (niobium)	...	...	94·0	93·3
Gadolinium ...	...	...	156·0	155·0
Gallium ...	...	...	70·0	69·5
Germanium ...	...	...	72·5	71·9
Helium ...	...	...	4·0	4·0
Krypton ...	...	...	81·8	81·2
Neon ...	...	...	20·0	19·9
Praseodymium	...	...	140·5	139·4
Radium ...	...	..	225·0	223·3
Xenon ...	...	...	128·0	127·0

**Australia**, the Position of Dentistry in. Written specially for the last, and slightly condensed for this, issue of the *Dental Annual* by *George Thomson, L.D.S. Eng.*

In the year 1884 a few Melbourne dentists met together and decided to form a Society, whose objects should be

the promotion of dental science and the regulation of dental practice. From this, the Odontological Society, came the agitation for a Dental Act. On the passing of this Act, which is very similar to that of Great Britain, a Board was appointed by the Governor in Council to carry out its provisions. The Board was half medical men and half dentists. Now the Board is elected by the dentists themselves.

The duties of the Board were, briefly :

1. To register suitable applicants.
2. To make provision for the education of students and examine them, etc.

Most of the pupils of dentists at the time took advantage of a modified examination, but now it is necessary to take the full curriculum, and examination matriculation of the Melbourne University, or an equivalent, is necessary to register as a student.

The social conditions of Australia enable the hospital to be conducted on lines rather intermediate between that of the American schools and ours here, and a class of people are reached who value the dental services, for which they pay according to their means.

The benefits conferred on the community have been generally recognised by the medical profession and the public, and the general enlightenment on dental subjects is bearing fruit, as shown by the large number of dentists employed in all the large cities of Australia.

New South Wales followed with a Dental Act with some improved clauses, and South Australia, Queensland, and Western Australia. Sydney has a strong Society, and a Dental Hospital and School. None of these Dental Acts exclude English dentists who are registered or eligible for registration in this country. It would probably be of great benefit to the cause in Australia if men who could lecture and teach students were to emigrate thither ;

and its climates (for they are of all kinds) may be a renewal of life to some who cannot endure the fogs, etc., in this country. *See also* **General Medical Council.**

**Australian Drug Co., Limited, The.** *See* **Manufacturers, etc.**

**Australian Journal of Dentistry, The.** *See* **Journals.**

## B.

**Babbitt's Metal.** *See* **Swaging.**

**Bacteriology** is assuming greater importance in the dental student's curriculum and examinations, lectures and demonstrations having been established in nearly all teaching centres. The subject still remains mostly outside of practical diagnosis in most of the oral affections dealt with by the profession, though much speculation is aroused by such recent communications as *Kenneth Goadby's* on vaccine treatment (*see* **Pyorrhœa**), and *Dencer Whittle's* upon a specific bacillus. The whole question of the bacteriology of affections of the mouth was treated of by *Kenneth Goadby* in a communication to the Oxford meeting of the British Medical Association (*B. M. J.*, 2,290, p. 1363; *see also* **Societies**). The paper cannot well be epitomized, but the final conclusions are:

1. That a certain degree of virulence may be possessed by an organism living an apparently saprophytic existence in the mouth.

2. That inflammatory conditions have the effect of increasing the number of species, as well as the total numbers of bacteria present.

3. That some sort of selection apparently takes place, but whether due to symbiosis or not it is at present impossible to say.

4. That mouth bacteria do at times gain access to the general blood-stream.

5. And that, finally, the potentiality for disease of oral sepsis receives considerable support from even a pre-



liminary survey of its bacteriology, perhaps pointing to its operation in a wider rôle than is at present credited or admitted.

The bacteriology of the alimentary canal is exhaustively treated of by *John H. Hewetson*, as a research scholar of the British Medical Association, in a special report published at length by the Scientific Grants Committee in *B. M. J.*, 2,291, p. 1457, and is worth study by those who have been impressed by a certain connection between appendicitis and oral sepsis.

*W. D. Miller* was awarded the gold medal for an essay at the Congress at St. Louis, entitled 'A Study of certain Questions relating to the Pathology of the Teeth.' The publication of this, profusely illustrated, was commenced in the *D. Cos.* (XLVI., p. 982). It is a summary of his well-known 'Micro-organisms of the Human Mouth,' supplemented by the latest researches. He generally reaffirms previous conclusions that saliva of alkaline reaction with foodstuffs encourages bacteria and decay, if anything, more actively than acid; that there is no detectable constituent of saliva inhibitory to caries; that the 'bacterial plaques' have no ascertainable connection with the process; and, so far as this paper and those of other writers have carried the subject, the real factors of decay or immunity have yet to be discovered.

**Bactericides.** See **Antiseptics, Sterilization.**

**Bale** (John, Sons and Danielsson, Ltd.), publishers of :

The School Dental Register.

The Simple Dental Day-Book.

The Simple Dental Ledger.

The Simple Dental Petty Ledger.

The Simple Dental Year-Book.

Bale's Dental Surgeon's Day-Book.

Dental Surgeon's Daily Diary and Appointment Book.

The Simple Dental Chart and Card Ledger.

**Bar Dentures, Removable.** As very useful compromises between the 'bridge' and the old close-fitting 'bar' lowers, satisfactory dentures are, we believe, increasingly made, both for upper and lower partial cases, in which different regions of the mouth fitted with either dental substitutes or attachments are connected with a narrow stiff bar, of oval or half-round section, approximately shaped to the configuration of the mouth, but barely touching the mucous membrane, instead of by plates swaged to accurately fit. Hygienic advantages are claimed for this construction, and it is asserted that the tongue is much more tolerant than might be supposed of the thick 'bar.' The greatest success in this form of construction appears to be in partial mandibular cases (so well-known as 'bar lowers'), where the ovoid wire can be placed just below the gum festoons, leaving interdental spaces clear.

**Barth and Company (G.),** as the oldest makers of compressed nitrous oxide gas and all apparatus for its administration, occupy almost a unique position in devoting themselves entirely to the development of anæsthesia by gas alone, or in combination with ether or oxygen. They make a specialty of appliances sterilizable by boiling, reversible bags, and Dr. Hewitt's latest apparatus and Paterson's nasal inhalers. They have a high reputation for the purity of gas supplied by them. *See* **Manufacturers, etc.**; also *Index to Advertisements*.

**Bengué (Dr.).** *See* **Manufacturers, etc.**

**Benleke (Ferd.).** *See* **Manufacturers, etc.**

**Benson (A.).** *See* **Manufacturers, etc.**

**Benzoic Acid,** according to careful oral germicidal experiments by Hunt (*see* **Antiseptics**), is superior to formalin or other agents, with the exception of mercuric chloride. *See* **Mouth-Washes.**

**Benzo-Naphthol,** a white, slightly soluble powder, might be

tried for root dressing or filling, easily breaking up into beta-naphthol and benzoic acid.

**Benzoyl Sulphonic Imide** (saccharin, officially 'Glusidum') is undoubtedly antiseptic, and therefore a useful addition to mouth-washes. This is now designated as Benzosulphinidum, or Benzosulphinide, in the new U.S.P.

**Birkbeck College.** See **Schools and Colleges.**

**Birmingham Dental Supply and Manufacturing Co.** See **Manufacturers, etc.**

**Bite-taking, Hints on,** are given in *B. J. D. Sc.*, XLVII., 134, 360. See also **Articulation.**

**Bleaching Teeth,** A Study in. *N. S. Hoff*, in experiments to compare the effects of peroxide of hydrogen, peroxide of sodium, benzozone (benzoyl-acetyl peroxide), aluminium chloride, chlorinated lime, and Kirk's sodium sulphite and boric acid mixture, seemed to show that the best results were with the peroxides, particularly a 25 per cent. hydrogen peroxide. But as benzozone is slowly soluble, and can be made to act for some time, there may be practical advantages in its employment.

Bleaching teeth by ordinary chemical applications or by cataphoresis is thoroughly discussed as 'The Restoration of Colour in Devitalized and Discoloured Teeth,' by W. F. Mellersh, in Gabell and Austen's 'Materia Medica.' He gets good results from the use of 25 per cent. hydrogen peroxide ('caustic pyrozone') and the sodium peroxide. In some cases dilute oxalic acid completes the bleaching of persistent brown stain. After thorough washing and drying, he saturates dentine with white shellac varnish before filling.

**Blitz, M.** See **Manufacturers, etc.**

**Blue Light,** as a general anæsthetic, by its action upon the optic nerve, we mentioned last year as having been reported with some sensationalism from Paris. The subject has been taken up with some care by *Harvey*

*Hilliard* in this country, where otherwise it does not appear to be yet seriously regarded. He says (*B. D. J.*, XXVI., p. 998) :

‘Those who are familiar with the attractive work of Lord Avebury on the influences of blue, violet, and ultra-violet rays upon ants; who are familiar with the work of Professor Roentgen with X rays, with that of Professor Finsen on the therapeutic value of light, and whose minds are impressed by the wonderful action of light in photography, and in Nature generally, will hear with no shock of surprise that blue light is capable of producing analgesia in human beings.

‘By the courtesy and kindness of Professor Redard, the discoverer of this method of mitigating pain, I learned the technique of his application of blue light; and in the hope of finding some improvement on the methods at present at our disposal, I determined to see for myself to what extent this agent could be utilized for producing analgesia. I began work full of scepticism, but was so much struck by the success of my early results that I published a short report of them in the *Medical Times* of May 20.

‘The blue light has a most distinctly calming influence, a desire to close the eyes and sleep is experienced, and, after some minutes, sensibility to pain is lessened; but the results have been variable, and an effort has been made to discover to what cause the variability was due. In some cases a very satisfactory analgesia was produced, accompanied by a distinct tendency to somnolence, with closed eyes and impaired consciousness after only two and a half minutes’ application of the blue light rays; while in others little or no effect was observed after a much longer period. In the best cases the analgesia was fleeting—that is to say, it lasted only long enough for three or four rapid extractions. But my experience has led me to believe that

in the most suitable cases it would be possible to induce sleep, and a very complete condition of analgesia if the patient could be subjected to the rays for a sufficient time. I believe the presence of a blue lamp suitably placed might give satisfactory results in the treatment of insomnia, owing to its calming influence, and I have tried it with some benefit in one case.

‘I had a special apparatus made by Messrs. Krohne and Sesseman, to whom my thanks are due for the careful and intelligent way in which they carried out my intentions. The apparatus consisted of two 8-volt flat blue lamps with the filament placed at right angles to the stem of the lamp. These lamps were made to give but very little heat, and were enclosed in a tin arrangement—similar to a stereoscope apparatus—fitting over the patient’s nose and around his orbits, so that the mouth and nose were exposed, and he could breathe fresh air, all daylight being at the same time excluded. The lamps were brought into close contact with the patient’s eyes, each lamp being separated from each eye by a lens. A window of blue glass was inserted for purposes of observation. Unhappily my results were no better with this apparatus, and I attributed this to the lights not being sufficiently intense. I therefore had a similar apparatus made to hold one 16-candle power lamp, but of sufficient length to prevent the lamp scorching the face, a sheet of plate-glass also being interposed to screen the heat rays from the eyes. Either arrangement is preferable to the ordinary reflector and veil, but my results have still been variable.

‘The best results are obtained with patients of a calm temperament, who are not highly nervous and fearful, who have sufficient intelligence to understand that analgesia can be present without loss of consciousness, and who can, and do, carry out the anæsthetist’s instructions.

‘*Conclusion.*—Analgesia certainly may be produced by

means of blue light rays applied in a suitable manner ; but the field of practical utility for this method is very limited. The good results obtained when the patient's head is enveloped in a blue veil, with the lamp and reflector inside, may in part be due to the narcotic effect of the vitiated air which he is made to rebreathe for some minutes. I am unable to account for the results produced by the blue light rays when applied in the manner I have described. Some say it is "hypnotism," but what is that ? They merely beg the question. Against the theory of hypnotism is the evidence of Professor Redard, who was unable to produce with yellow, red, and green light the same effects as those produced by blue. The professor's explanation is that the actinic rays penetrate the eye, and, acting through the optic nerve, produce some chemical change in the central nervous system.'

Another remarkable account of the use of blue light, but in another direction, is by *J. C. Watkins* (*D. Cos.*, October, 1905), for the reduction of swelling and the alleviation of pain. He says : 'Those who have used the blue light have done so by subjecting the patient to a bath of blue light in a dark room, and these rays, they claim, exert an influence upon the brain through the optic nerve, while perhaps the element of hypnosis enters slightly. The system that I wish to introduce is simply to apply the blue rays directly to the part affected.

'The appliance that I have constructed is simply a 16-candle power blue electric light globe, arranged in a funnel-shaped tin shield, which at its mouth is about 4 inches in diameter. This is extended about 4 inches, and has at its end a ground blue glass and convex lens. The ground blue glass is used to disseminate the blue rays so that the patient may not know the simplicity of the apparatus, and I attribute no special virtue to the lens. I have kept a clinical history of a number of cases, and



will simply indicate several different classes where I have used the light to advantage.'

The author relates numerous instances which appear to show a rapid effect of the radiation in acute inflammation, such as periostitis, etc.

Arienzo is cited by the *Journal de Médecine de Paris* as having employed in obstinate cases an ordinary reflector with an incandescent lamp of thirty candle-power, applied for from ten to fifteen minutes, the patient being some fifteen centimetres from the apparatus. Four cases of neuralgia of the trigeminus and one of the auriculo-temporal nerve were speedily ameliorated by the treatment. According to Arienzo, blue rays have a specific anæsthetic effect; he thinks the light penetrates the tissues and subjacent organs, and has a special action upon the vasa nervorum.

**Blundell** (J., J. J., and T. G.), refiners of precious metals, have a very complete laboratory for accurate scientific and commercial metallurgical operations, where assays, the preparation of special alloys, and any research work can be done for the profession. They also prepare enamels for art jewellery. See **Manufacturers, etc.**; also *Index to Advertisements*.

**Branalcane**—a proprietary liquid recommended for mouth and throat affections, said to consist of boroglycerine with resorcin, coloured and flavoured.

**Bridge Work.** The main development of this work has been in the direction of greater substitution of porcelain for gold in several ways. Not only are either facings and entire crowns of this replacing the metal previously so much used, but the structural portion of the work is more frequently built up of stout rigid platinum, and entirely covered and contoured with vitreous enamel. The highest examples of this were shown by *Dr. Jenkins*, of Dresden, recently. See **Porcelain**. Other developments have been mostly in the

direction of practical details of removability for regular cleansing, and the devising of methods for repairing fixed structures. The latter have little interest to the ardent advocates of removable bridges, which they consider should entirely supersede the fixed ones. An immense amount of inventive ingenuity has been expended upon the problem of the so-called removable bridges; for in many cases only a portion of the whole device is removable, certain fixtures being permanently attached to teeth or roots as the abutments or anchorages for the whole. A cemented-on bridge requires less trouble to plan and execute, and makes a more immediate favourable impression upon a patient accustomed to the trouble of cleaning plates. But there are not wanting experienced and careful dentists who have arrived at the conclusion that fixed bridges, except in certain very favourable circumstances, are unwarrantable from the point of view of strict oral hygiene. On the other hand, others claim that a large number of cases admit of permanent fixation if carefully designed, and answer all requirements if the wearer devotes such care to them as would be given to a sound natural denture or an artificial plate substitute. The greater use of porcelain, which is so much more readily kept clean, strengthens this contention.

A development which has made for the advocates of fixed work is undoubtedly the facility now provided by porcelain inlay outfits for the ready construction of new facings which can be easily cemented into place. The fairly satisfactory repair of bridge-work, either in the mouth or when it is undesirable to heat and solder for replacing a dislodged or fractured tooth or facing, by the methods of inlay work has greatly added to the resources of prosthetic technique. It is quite impossible, within our limits, to enter into any detailed description of all the methods which have found favour and are described in

the periodical literature. No better and more systematic treatise upon the whole subject has appeared than the series of articles by Dr. F. A. Peeso in the *Dental Cosmos*, entitled 'The A B C of Crown and Bridge Work' (XLV., pp. 12, 95, 180, 274, 364, 461), in which the preparation of teeth and roots, the taking of impressions, and the adjustment of appliances, are very clearly described. Opinion, he points out, continues to differ as to the relative advantages of fixed or removable constructions, many so-called 'bridge pieces' being practically partial sets or 'dummies' without plates, or with very small plates called 'saddle-rests,' but with bands or clasps very carefully constructed to fit or 'telescope' upon natural teeth, specially shaped or crowned or otherwise provided with certain fittings for retaining the work in position.

With a view of scientifically and accurately recording the construction and conditions of bridge-work cases, Mr. G. G. Campion has devised a special 'Chart and Record Sheet for Bridge-work,' fully described in *B. D. J.* (XXIV., p. 715), a slightly reduced copy of which we are privileged to reproduce (*see* next page).

Fixed bridges are still attached by cement or gutta-percha, the latter having some advocates, who claim advantages of greater elasticity, comfort, and freedom from irritation, with facility for removal and repair; but, on the whole, the greatest confidence seems to be given to cement, Dr. Ames particularly recommending the oxy-copper phosphate as having a preservative action and being more insoluble. He also elaborates the idea of resorting to bridge-work when it can be combined with a splint or permanent retaining function in the treatment of otherwise incurable pyorrhœa. *D. Cos.*, XLV., P. 355.

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NORTH MIDLAND BRANCH,  
BRITISH DENTAL ASSOCIATION

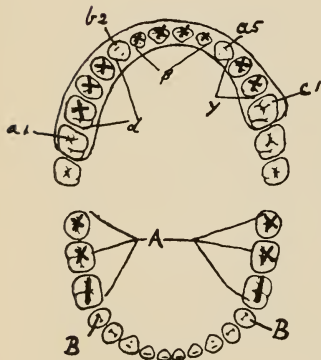
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## CHART AND RECORD OF BRIDGE CASES.

Name John SmithAge 43Date 3 April 03Dynamometer force 14.2 lbs. on left canine teeth.

Teeth wholly absent to be marked thus X—Crowns only absent thus I

Teeth antagonising Bridge—(A) on denture, (B) crown or bridge.

Depth of overbite—Central incisors 4 millimetres.Projection of cutting edges of upper incisors in front of lowers 3 millimetresBite raised 2 millimetres at the middle line on completion.

## Teeth and roots forming piers:—

- (a) With live pulps.  
 (b) Pulpless—Devitalised, or previously filled, and aseptic.  
 (c) Pulpless—Septic prior to treatment for bridge.

## Intervals Bridged:—

Extreme length in millimetres at the gum line 17

## Attachments:—

- (A) (1) With collar 25  
 (2) " " and post 14  
 (3) " post alone. 8  
 (4) Supported by lug resting on natural or crowned tooth.  
 (5) Open-faced Crown

(B) Material used for fixation and particular make used

Gutta percha - Gilberts -

## Character of masticating surface:—

Whether struck to bite or with normally arranged cusps or  
how formed struck to biteMaterials:—Carat gold 18Number solder 2Thickness of bands 3Shape and material of posts Platinum flat.Make of teeth used Ash

Remarks:— [In cases of failure note the nature and apparent cause.]

**British Dental Association.** *See Societies.*

*British Dental Journal* was the new short title adopted by the official organ of the British Dental Association at the beginning of last year (1905); published now twice a month, and by the Association itself. Previously it was known as the *Journal of the British Dental Association*. *See Journals.*

British Dental Association, Journal of the. *See Journals.*

**British Journal of Dental Science, The.** *See Journals.*

**Buffalo Dental Manufacturing Company, The.** *See Manufacturers, etc.*

**Busbridge (J. E.).** *See Manufacturers, etc.*

**Butyl Chloral cum Gelsemina.** It is thought that the well-known effect of butyl chloral in controlling facial neuralgia is largely assisted by the addition of a minute dose of gelseminum, which combination can now be had in tablets or pills.

## C.

**Calcium Chloride.** *J. H. Milnes* notes the very marked effect of calcium chloride in bleeding. He says (*B. D. J.*, XXV., p. 841): 'Respecting (1) the rapidity of coagulation; (2) consistency of clot when formed. Fibrin ferment converts fibrinogen into fibrin very slowly without  $\text{CaCl}_2$ , but with it the time necessary is very much less. What the action of  $\text{CaCl}_2$  is has not been quite settled, but it is supposed to form some chemical compound with either fibrinogen or fibrin ferment, which hastens its action. This action is obtained either by local application or by internal administration. In the case of bleeding from cavity after extraction of teeth, a small gauze plug well saturated with strong  $\text{CaCl}_2$  and firmly packed into the cavity is an extremely useful method, and very rarely fails. It has recently been pointed out (*Boas, Therapie der Gegenwart*) that if an exceptionally pure form is used, the results are strikingly superior.'

**Calcium Permanganate** is better for a mouth preparation than the sodium or potassium salts, having greater sterilizing power and less taste. One part added to 100,000 parts of ordinary water will sterilize it in five minutes.

**Calcium Peroxide.** In an interesting article upon the peroxides generally, *Mr. Eustace H. Gane (D. Cos., XLVI., p. 988)* speaks of the calcium peroxide as an ideal constituent of a tooth-powder. He says it might be added to a dentifrice, which would serve the triple purpose of a mouth-wash, an ant-acid, and a cleanser, having properties which would not be merely mechanical, but chemical as well. Such a dentifrice would not only clean the teeth, but would sterilize the mouth—a problem which the oral therapist had long sought to solve.

We note that since the above was written several 'oxygen' tooth-powders are in the market under various names, such as 'Calox,' etc., but we have no special information or report of them.

**Calendula** is retained in the new U.S.P., and we notice is prescribed in several of the mouth-wash formulæ published from time to time.

**Camphor Spirit** is stated by Weitlauer (*Monat. Sch. für Derm.*) to have a greater antiseptic effect than any preparation of salicylic acid.

**Camphorated Carbolic Acid**, composed of phenol 12, camphor 4, water 1, has been used as an obtundent and anæsthetic for sensitive dentine or in odontalgia. Used warm it has an excellent effect in a well-dried cavity, or for pressure cataphoresis in nerve treatment. It does not mix with water.

**Canada.** See also **American Dental Colleges**

Last year saw a new development in the regular State control of the profession, and a uniform standard of education for the Dominion, by the creation of a board to be called the Dominion Dental Council.



The first official meeting of the Dominion Dental Council was held in Toronto, November 15, 1905. All the provinces of Canada were represented except British Columbia. Nova Scotia was represented by Drs. Woodbury and Thomson; New Brunswick, by Dr. Magee; Prince Edward Island, by Dr. Bagnall; Quebec, by Drs. Stevenson and Glabenskey; Ontario, by Drs. Abbot and Burt; Manitoba, by Drs. McInnis and Bush; Alberta, by Drs. McClure and Bruce; Saskatchewan, by Drs. Cowan and Size.

On November 14 the Executive Committee met to complete the draft of the constitution and by-laws to govern the Council. The report of the Executive Committee was received, and after three days' discussion adopted, with certain amendments.

Examiners were appointed to conduct the first examination, June 7, 1906.

The examination will embrace Operative Dentistry, Prosthetic Dentistry, Orthodontia, Medicine and Surgery, Materia Medica and Therapeutics, Anatomy, Physiology and Histology, Bacteriology and Pathology, Physics, Chemistry and Metallurgy, Jurisprudence and Ethics, Practical Operative Dentistry, and Practical Prosthetic Dentistry.

The standard set by the Council for its certificate will be :

Matriculation accepted by the General Medical Council in medicine or dentistry of Great Britain or the provincial Universities in Canada. Attendance on four courses of seventh months each, or graduation of a recognised Canadian Dental College or University. Candidates must have studied dentistry for a period of not less than forty-two months, and pass the examination set by the Dominion Dental Council.

Provisions were made to respect the rights of those now in practice and those now studying dentistry in Canada.

*Class A* includes all those who may enter upon the study of dentistry in Canada after January 1, 1906.

*Class B* includes all those who are now students of Dentistry in Canada.

*Class C* includes all those who have not been ten years in practice in Canada.

*Class D* includes all those who have been in practice more than ten years in Canada.

*Class A* must comply with the requirements as set forth above.

*Class B* must pass the examination set by the Council.

*Class C* must pass a modified examination or wait for the expiration of ten years.

*Class D* must have fulfilled certain requirements during their practice, and present certain certificates of qualification.

Seven provinces entered into the agreement.

We understand that this year, at the next meeting of the Council, all the provinces of Canada will combine in the agreement.

An article upon the Canadian Army Dental Service, from information collected first hand on the spot by *Captain Howe*, appeared in the *B. D. J.* (XXVI., p. 950), from which we quote :

‘The spirit of patriotism in Canada is intense, and, as the keenest practical interest is taken in all military matters, it will be readily understood that when the profession discovered the serious dental condition of the troops who returned from active service, the dentists of Canada lost no time in urging the Government to take steps to prevent a recurrence of such a state of things. At the first meeting of the Canadian Dental Association, held in September, 1902, it was unanimously resolved :

‘“ That the members of the Canadian Dental Association favour the adoption by the Militia Department of

provision for a regular army dental staff, which shall be a distinct branch of the service, the members of which shall hold rank as do the general surgeons; and for the attainment of this end that a General Committee be appointed, consisting of two members from each province and from the territories, and where two societies exist in a province that additional members be appointed, so that every society be represented. This General Committee to appoint a Central Sub-committee."

'The Minister of Militia and Defence, the Hon. Sir F. W. Borden, K.C.M.G., M.D., expressed his approval of the general principle, and in July, 1904, an order was promulgated which authorized the appointment of dental surgeons to the Militia Army Medical Corps.'

The number of dental surgeons to be appointed was originally fixed at eighteen, but the results obtained by those employed during the Militia training this year (1905) were so good that it has been decided to increase the establishment to twenty-five during the next two years.

Dental surgeons receive commissions signed by His Excellency the Governor-General, being given the relative rank of Lieutenant on appointment, and that of Captain after five years' service. Their official designation is, however, 'Dental Surgeon,' irrespective of the relative rank held. Their status is very similar to that of officers of the Royal Army Medical Corps Volunteers in the British army. The uniform worn is that of the Militia Army Medical Corps, with a distinctive badge ('D.S.').

**Capping-Pulp.** An application which may be made instantaneously and painlessly is a melted mixture of equal parts of salol and thymol, which, taken up on a warm ball burnisher and allowed to flow over an exposure, sets hard immediately. Though both sedative and antiseptic, it sets up no changes in the pulp, and in a case of slight

traumatic exposure is a covering which may be filled over at once. It is handled more conveniently if thickened with a little inert powder, such as very fine zinc oxide.

**Carbolic Acid Liquefied**, usually made with only 10 per cent. of water, is much better with 12 to 14 per cent., and then will not crystallize in ordinary cold.

In pressure cataphoresis of dentine or pulp, used warm or quite hot to moisten a minute crystal of cocain, this or the camphorated solution is found a good vehicle. It appears definitely proved that in any strength which can be tolerated by the mucous membrane—viz., about 1 in 200—it has but slight germicidal powers, and it has been noted by independent observers that its continued use in dentifrice seems to be detrimental.

**Carbonic snow**, on wool, as a cold application, has been suggested for local anæsthesia instead of refrigerating sprays in minor operations, such as anterior extractions, incisions, etc. It must be used with great care.

**Carbonized cotton** is being much used and highly spoken of as a dressing in the treatment of root canals, especially putrescent ones. The material is prepared by soaking purified absorbent cotton in a solution of boracic acid, and then heating with exclusion of air until completely charred. It is employed to convey any antiseptic that is being applied, and is said to keep aseptic much longer than either ordinary cotton or silk.

**Carbon points** for root-filling are also prepared. Suitable wood is shaped and carbonized, with sufficient tenacity to be carried to place in root canals, either after being simply sterilized by heat or saturated in any medicament desired. The best results are claimed for its use quite dry, and crushed after placed in position.

**Caries.** *See also Bacteriology.*

Dental caries and its sequelæ have lately been described by indisputable authorities as the 'most common of all

diseases of the human race,' and, according to the finding of the recent inter-departmental inquiry, are the prominent factors among the signs of modern physical degeneration. Our knowledge of caries still excludes any acceptable and strictly demonstrated reason for its ravages in certain individuals and the almost complete immunity enjoyed by others. The paper, which was awarded the gold medal for prize essays read before the Section of Pathology, Etiology, and Bacteriology at St. Louis by Dr. Professor W. D. Miller, in reviewing all the most recent researches and speculations, negatives the guesses which have been made as to the presence or absence of bacteria-inhibiting constituents of the saliva or the paramount influence of artificial cleansing or the nature of foods. For the first part of this paper see *D. Cos.*, XLVI., p. 981. According to *Dr. Aug. Lohmann* (*Archiv. für Zahnheilkunde*, June, 1904) an important part is played by mucin in the saliva. He believes that mucin has a decalcifying action upon the enamel of the teeth. He has observed that people whose salivary secretion is abundant, with mucin in large proportion, have a considerable number of carious teeth, and that the carious process is more rapid when the saliva is decidedly viscid. He has carried on a series of investigations, and found that mucin has as strong a decalcifying action as lactic acid. A molar weighing 2.131 grammes suspended in the mucin obtained from the saliva of a girl aged eighteen weighed only 2.112 grammes at the end of the thirtieth day. The saliva of pregnant women contains a great proportion of mucin, and is therefore more decalcifying than that of the normal subject. A tooth weighing 2.066 grammes suspended in the saliva of a pregnant woman weighed only 1.777 grammes after thirty days' sojourn in the fluid. An experiment was made with lactic acid in 2 per cent. solution. A tooth weighing 2.117 grammes was allowed

to remain in this solution for thirty days. At the conclusion of the experiment it weighed 2.072 grammes. It should be remembered that lactic acid is present in the salivary fluid to the extent of 0.75 per cent.

The effects of the presence of mucin upon the surfaces of teeth and mucous membrane can be neutralized by the action of slightly astringent and antiseptic solutions, or by means of a physiological salt solution, which is a solvent for mucin.

While solution or chemical erosion of dental tissue is not the same as caries, we still know so little of the factors which make for the latter, that the rôle played by mucin in the saliva, yet imperfectly understood, deserves further investigation. Notwithstanding Dr. Miller's opinion that it is hardly worth consideration, some very striking facts are recalled as to the ascertained connection between viscid saliva rich in mucin and the rapidity of decay. Noting also among other chemical facts that there is 25 per cent. carbohydrate constituent in mucin as a possible pabulum, it is rightly said that, in the paramountly important future research into immunity from caries, if the still quite obscure problem is ever solved, our present knowledge points to the probability of the nature of the oral fluids as the determining or predisposing cause.

The immunity existing in individuals was the subject of a series of careful experimental researches upon the alleged effect of constituents of the saliva reported by *W. D. Miller*, communicated originally to the *D. Cos.*, and republished in *B. D. J.*, XXIV., pp. 85, 206, 606, 669, and continued. *S. W. R. Colyer* has written suggestively upon 'The Problem of Dental Caries,' in the *D. Rev.*, but otherwise little or nothing has been added to our knowledge in the scientific literature of the year. Some interest has been aroused by iconoclastic opinions ventilated in medical periodicals as to the efficacy of tooth



powders and the artificial operation of brushing the teeth and gums. There has been a remarkable consensus of opinion as to the importance of natural infant feeding and the superiority of early mastication, the use of hard and resisting food, and the general exercise of the jaw muscles, with the increased vascular and nervous supply resulting, as compared with soft feeding and artificial cleansing.

**Caroid solvent.** A pulp mummifying or digesting saturated solution of vegetable ferments, prepared from carica papaya and colza. *See* **Root Fillings and Treatment.**

**Cataphoresis.** The theory and practice was well summed up by *J. B. Preston* in a paper reported in *D. Rec.*, XXII., p. 345. *See also D. Cos.*, XLV., pp. 74, 325, 678. Until a year or two ago the use of this term always implied the application of an electric current; but it should be pointed out that as cataphoresis is, strictly speaking, a physical phenomenon, which may or may not be associated with such forces as pressure, chemical activity, or electrical energy, a distinction should always be made. As a matter of fact, it is claimed by the advocates of pressure anæsthesia, applied either to sensitive dentine or exposed pulps, that a true cataphoric diffusion of the agents employed is more rapidly and perfectly insured by simple mechanical pressure than by electricity.

**Cavity formation** for retention of inlays has received much attention of late. It is almost unanimously pointed out that there are many essential differences between the principles of cavity form for ordinary fillings and inlays which must be carefully observed to secure success with the latter.

A careful résumé by Dr. Peck is in *D. Cos.*, XLVI., p. 904. *See also* **Inlays.**

**Celluloid** is said now to be prepared in France by treating the nitrocellulose with naphthalene instead of camphor as hitherto.

**Celluloid cement** has been considerably used in America for the final covering and protection of wire and other splint bandaging for fractures or fixations and in fixed regulating appliances. It is made by dissolving celluloid in acetone to saturation, with or without the addition of oxide of tin, which is said to give strength and accelerate hardening. See Dr. Rhein, *D. Cos.*, XLV., p. 389. A preparation of this, suitably coloured pink, has been upon the market as an easily applied substitute for 'continuous gum' in dentures.

**Cements, Dental.** In the accepted sense of a rapidly hardening mixture, resembling more or less the natural tooth structures, as a filling, and also for fixing inlays, facings, etc., the market has been flooded lately with preparations differing from the oxyphosphates and chlorides much used for years. This is a revival of silicate mixtures, several forms of which were tried years ago, possessing the physical advantage of a slight translucency which greatly enhances the appearance. Little can as yet be said as to the ultimate fate of these materials, as some disappointment has already attended their use; but the fault of deficient edge strength it is claimed has been somewhat minimized by improved manufacture, and is not a detriment when used in suitable positions.

The pioneer of modern practical translucent cements of this character is undoubtedly Ascher's Artificial Enamel, of which the sole licensees for Great Britain are Scheider and Co., of 9, Noble Street, London, W. Its introduction caused considerable sensation, as it differed so greatly from all the plastic fillings then in use; and it was naturally regarded with curiosity and suspicion. Comparative tests of physical qualities with the oxy-phosphates or chlorides are almost impossible, from the singular fact that the behaviour of silicate cements exposed to the air only and, on the other hand, bathed in fluid (as in the

mouth), is so different. Kept dry, the surface loses the smooth translucency preserved under saliva. The first makes were somewhat deficient in edge strength and also in adhesiveness; but a greatly improved form now sold, is certainly more adhesive, and is claimed by the makers to have greater toughness of edge. We also find it sets harder in the few tests made, and as its working is extremely agreeable, if the claims made of increased insolubility are but partially realized, it should be a very admirable filling material, where all the natural effect of a porcelain inlay of ideal perfection is required.

A clinical demonstration of its use was given at the annual meeting of the British Dental Association at Southport by Mr. W. H. Gilmour, of Liverpool; and in the course of a paper read before the Southern Counties Branch (*B. D. J.*, XXVI., p. 461), Mr. R. H. Manning, of Richmond (the first editor of the *Dental Surgeon*), said:

‘Arriving, by this devious process, at the subject of filling teeth, I am anxious to meet someone who has had some experience of Ascher’s Artificial Enamel. I have used it in a few cases, and so far as working properties and appearance go I like it immensely. If it performs three parts of its promise I shall die happy. If it performs all that is claimed for it I shall hope to live for ever. I have here a bone-mixing spatula, which is a very good pattern, as the handle is so constructed as to afford a good grip. I find that, for Ascher’s Artificial Enamel especially, bone is much better than nickel.’

There was also considerable discussion of modern silicate filling materials at the last meetings of the American Dental Society of Europe, and the American Dental Club in Paris, where, although some divergent opinions were expressed, it was assumed that Ascher’s was a type of the class of translucent plastics.

Ascher’s Artificial Enamel has been quickly followed

by Dr. Rawlitz's 'Astral' Translucent Cement (C. Ash, Sons and Co.), and a new output by the Harvard Company, of Berlin, termed 'Harvardid.' All have much to recommend them, and for the obturation of cavities in the visible surfaces of incisors and canines, if care is taken to effectively match the colour, they are a distinct advance upon the old cements.

In their manipulation attention to technique is necessary if excellence of result is to be obtained. These translucent cements are not quite so tenacious as ordinary cements; therefore it is necessary to well undercut the cavity, as in the case of filling with gold or amalgam. In cavities where few or no undercuts are obtainable, a layer of ordinary osteo should be inserted first and allowed to set. Upon the hard surface of this undercuts can be made, which will serve as a firm anchorage for the translucent filling. All moisture should be rigidly excluded by the application of rubber dam or wool rolls. To avoid discolouration of the cement, metal spatulas should not be used. Bone and glass spatulas have been introduced instead, and of the two those made of the last material are the best for mixing purposes; the cement does not adhere to glass as it does to bone. All instruments employed in the manipulation of these cements should be thoroughly clean and highly polished. Not the least important feature is the finishing. Burnishing with agate or crystal gives an excellent surface, especially in the case of 'Astral' cement. To insure perfect smoothness, the burnishers should be well smeared with vaseline during use. Agate and crystal burnishers are made by Messrs. Ash, Sons and Co., in the form of points and wheels for the dental engine or burnishers for the hand. The highest degree of translucency seems to be possessed by 'Astral' Cement Filling and Ascher's Artificial Enamel. The former has some time-saving qualities to recommend it,

as the polishing is best done before the cement has set, this saving the operator a wait of ten or fifteen minutes. A novel method of drying, which is claimed to be superior to the use of varnish, consists of placing a piece of white paraffin wax in position and heating it to an adhesive point by means of a warm instrument or a current of hot air from the syringe. If the patient be instructed to retain this in position for the period of an hour or so, the filling will be rendered quite dry and moisture-proof.

The whole question of cements gradually assumes more importance in relation to its employment in fixing inlays ; and from that point of view, while the transparent variety should greatly assist the colour problem in shallow inlays of porcelain, it is unfortunate that the adhesive power of those intended as fillings seems inferior to the phosphates. The question of the solvent action of saliva on cements was thoroughly treated of by *J. E. Hinkins* at the St. Louis Congress, and with a discussion reported in *D. Cos.*, XLVII., p. 322. At the Congress there was much debate on cements from the inlay-setting point of view, especially as regards fineness of texture, plasticity, and adhesiveness. An explanation seems to be wanting for the unexpected durability of cement upon the exposed line between cavity margin, and inlay, where it so rapidly dissolves in the case of all cement fillings. Some have sought this in supposing that penetration to a considerable depth by the agencies of dissolution must precede disintegration, and others by the supposition that the great pressure of setting an inlay, when the force resolved against the wall is considered, makes for an adaptation of the material otherwise impossible.

The chemistry of plastic cements in ordinary use was exhaustively discussed by *Dr. Albin Lenhardtson* in a paper at the Madrid Congress, reported in *D. Cos.*, XLV., p. 875. Nothing definitely new is formulated, but the author

speaks of experiments in progress with the oxides of beryllium, zirconium, cerium, thorium, etc., and the paper is suggestive.

**Cement Compound Fillings.** It has long been a practice to use one of the 'osteo' type of cements as a floor for gold or amalgam fillings; but a systematic use of this strongly urged by *Mr. Harry Baldwin*, in reviewing his original communication to the Odontological Society of seven years ago, and at Aberdeen in 1904 (*B. D. J.*, XXV., p. 781), has met with much approval by the profession everywhere. He advocates a method of filling teeth by lining the cavity with oxyphosphate of zinc cement, placing amalgam into the cement while still soft, and finishing with an amalgam surface. The cases for which the composite is suitable are practically all those which are generally considered to be suitable for amalgam alone, a great many cases which are generally considered suitable for cement alone, and in addition a great many cases which would otherwise be suitable only for gold. All large interstitial cavities in molars and bicusps and crown cavities which are fit to receive a hard filling at all may with propriety be filled by this method. There is little in common between a filling of this sort and an ordinary amalgam filling. Thus, to compare it point by point with gold or amalgam: (1) It requires a much smaller sacrifice of healthy tooth substance. (2) It leaves a stronger tooth less liable to subsequent fracture. (3) It necessitates much less pain in excavating. (4) It interposes a non-conducting layer between the sensitive denture and the metal. (5) It adheres to the cavity. (6) It is more water-tight. (7) Compared with amalgam, at all events, it does not stain the tooth, nor show through the thin enamel of a nasty colour. (8) It is much quicker to insert than gold, and even quicker than amalgam



alone—*i.e.*, when amalgam is inserted with a due amount of care and labour.

The time-honoured practice of laying down a phosphate floor at the bottom of a deep cavity and allowing it to set before proceeding to fill with amalgam gives a good protection to the pulp ; but, owing to the amalgam being then held merely by the edges of the cavity, is a very inferior plan.

This combination of cement and amalgam has demonstrated the new fact that the best way of inserting cement is to press it in with amalgam. The meaning of this is that cement pressed in with amalgam acquires a closer opposition and stronger adhesion to the tooth than when the cement is put in alone. The reason for this is that the cement is driven in under greater compression through the intermediary of the amalgam, and is not pulled away again by adhesion to the instrument. Thus it comes about that if it is desired to fill cavities with a very slight amount of hold, a P. c. A. filling will remain in where a cement filling will not. After thoroughly drying the cavity it is an advantage to rub the fluid phosphoric acid unmixed into all parts of the cavity walls, with, say, a little ball of cotton-wool, and then immediately to dry it out again with a fresh clean piece of cotton-wool. This introduces a condition of compatibility between cavity walls and phosphate cement, which makes the cement much more willing to enter and to adhere than otherwise.

Mr. Baldwin further demonstrated the unexpected and remarkable fact that there was a complete and strong mechanical union between soft cement and amalgam, by fracturing little composite rods made by filling tubes partly with cement and completing with amalgam.

**Cement veneer** of a strikingly novel character is described by *Dr. Land* ('Porcelain Dental Art,' *D. Cos.*, XLV., p. 437). He makes a porcelain vitreous wafer less than  $\frac{1}{10}$  inch

thick, on one side of which is a layer of oxyphosphate, with which he claims the phosphoric acid fluids of ordinary cements will intimately combine.

**Cement mixing** generally is discussed by *Dr. Ames* in *D. Cos.*, XLV., p. 178, who gives theoretical reasons for the frequently disputed directions as to the slow and gradual incorporation of the powder with the liquid. He particularly condemns the use of an iron or steel spatula as extremely detrimental, advising a high-grade German silver or 'platinoid' material. It has, however, lately been demonstrated that a German silver spatula will darken the colour of all cements, and the use of one has been advised when it is wished to render the 'mix' grayer in tone. By continued 'spatulation' of a slow-setting cement a very dark gray can be obtained.

**Chewing-gum** as a habit is defended by *Dr. Jackson*, of New York (*D. Cos.*, XLV., p. 794), who says: 'Massaging the gums is of benefit. Chewing-gum stimulates the tissues and brings on a better circulation by giving the teeth additional work. It also develops and strengthens the muscles, encouraging better trituration of the food. The chewing of gum should not be indulged in for a longer period than fifteen minutes after meals, owing to the detrimental effect of an oversecretion of saliva.'

**Chinosol.** The potassium sulphur salt of oxychinoline, a yellow powder freely soluble in water, has been found by recent experiments most specifically active as an antiseptic to pus organisms. Fifteen grains (which may be had in tablets) in a pint of water is a suitable dilution.

**Chloretone.** A remedy of marked local anæsthetic effect, considerable antiseptic power, and internally a general anæsthetic and hypnotic. A white crystalline product of the action of chloroform and acetone upon caustic potash, it is somewhat volatile, very slightly soluble in cold water (about 1 per cent.), more so in hot water, and in strong

alcohol, chloroform, ether, and the essential oils. Less than  $\frac{1}{2}$  per cent. will preserve organic fluids and cocaine solutions. For keeping sterile hypodermic injections it is said to be very satisfactory, adding to the effect of local anæsthesia. Very hot aqueous solutions, saturated, are soothing to all lacerated wounds and in operations upon the gums. Essential oils, such as cloves, saturated with chloretone, are efficacious in odontalgia, periostitis, and in root-canal treatment.

**Chloroform.** *E. Weisskopf* recommends chloroform as the best antidote after inhalation of nitrous oxide and consequent spasms due to irritation of the senso-motor nerve endings. Three to 5 drops in a glassful of water should be taken every ten minutes, but the aggregate should not exceed 1.5 grm. (gr. 24) per day. *See Anæsthesia.*

**Clark and Co. (A. C.).** *See Manufacturers, etc.*

**Clarkson and Co. (A.).** *See Manufacturers, etc.*

**Cleft-Palate.** Sir L. Hepenstal Ormsby, after thirty years' experience of surgical procedure, considers the operation for cleft-palate one of the most difficult in the whole range of surgery. He thinks that hare-lip should be operated upon as early in life as possible (between the fourth and sixth week in a healthy infant), but that interference with palatine defects should be deferred until the age of five or six years. In cases of failure after several operative attempts in childhood, he advises nothing further being done until an obturator can be fitted at puberty. Mechanical appliances he regards as harmful before the attainment of full growth. An interesting monograph upon cleft-palate and hare-lip, by W. Arburthnot Lane, as a résumé of his previous publications, and well illustrated, was issued last year. (The Medical Publishing Co.)

**Clippings, Dental.** *See Journals.*

Colleges and Schools. *See also* Education.

## RECOGNISED DENTAL HOSPITALS AND SCHOOLS.

### LONDON.

Royal Dental Hospital of London, and the London School of Dental Surgery.—National Dental Hospital.—Guy's Hospital Dental Department and School.

### PROVINCIAL.

Birmingham Dental Hospital and University of Birmingham.—Bristol Medical School and Royal Infirmary and General Hospital. — Liverpool Dental Hospital and University of Liverpool. — Victoria Dental Hospital, Manchester, and Owens College, Manchester, Dental Department. — Newcastle-on-Tyne Dental Hospital.—Sheffield Royal Hospital and the University of Sheffield, Dental Department.

### SCOTLAND.

Edinburgh Dental Hospital and School.—Glasgow Dental Hospital and School.

### IRELAND.

Dublin—Dental Hospital and School of Ireland.

## HOSPITALS RECOGNISED FOR DENTAL HOSPITAL PRACTICE, BUT UNATTACHED TO A DENTAL SCHOOL.

### LONDON.

St. Thomas's Hospital Dental Department.—Westminster Hospital Dental Department.

### PROVINCIAL.

Newcastle-on-Tyne Royal Infirmary Dental Department.—Plymouth Dental Hospital.—Exeter Dental Hospital.—Newcastle-on-Tyne Royal Infirmary.

To these should be added as educational centres the Public Dental Dispensaries which are now being established in many places, either as separate institutions or as dental departments of existing general hospitals or dispensaries; and which, though not yet recognised officially as qualifying for the course of dental practice required, already afford great opportunity for practical experience, and may in time be officially recognised not only for practice but for apprenticeship.

Private classes in mechanical work, such as were inaugurated by the Institute of Dental Technology under George Cunningham, are now being conducted at the Merrion Dental Prosthetic School, London, by Mr. W. Booth-Pearsall.

The Royal Dental Hospital of London and London School of Dental Surgery, 32, Leicester Square, W.C. *Dean*: J. F. Colyer.

This hospital was founded in 1858, in Soho Square, the staff being Messrs. S. Cartwright, jun., W. A. Harrison, R. Hepburn, C. Rogers, J. Tomes, F.R.S., and T. Underwood. In March, 1874, removed to more commodious premises at 40, Leicester Square, the rapid growth of the school made enlargement necessary, and, thanks to the munificence of the late Sir Edwin Saunders, another wing was added in 1883, the present building at No. 32 being opened in March, 1901.

The hospital is open every afternoon except Saturday, in addition to the morning.

The officers for the day give practical teaching at the chair-side, enabling the students to acquire experience in the treatment of the many minor difficulties of their profession.

A demonstration is given in each week by a member of the staff for second year students. The whole of the staff demonstrate and give lectures on any form of work in which they are especially skilled.

The mechanical laboratory is under the superintendence of the lecturer on Dental Mechanics and of a

skilled mechanic. Students are required to take models, manufacture and fit in the mouth dentures for patients allotted to them, the actual manufacture being under the superintendence of the mechanical assistant, while the adapting to the mouth is supervised by members of the staff.

The medical tutor attends and helps the students in preparing for their examination for four months before each examination.

The Storer-Bennett Research Scholarship, value £50, is awarded triennially.

The Saunders and Entrance Scholarships, value £20 each, are awarded annually.

Messrs. C. Ash and Sons give a prize of the value of 5 guineas each year. Prizes are awarded by the lecturers, and a special one is presented to the best operator for the year.

The Mechanical Materia Medica and Bacteriological Laboratories are fully equipped.

*The Library.*—This room is always open for reading, and any books can be had from the cases for purposes of study.

*The Students' Society* meets monthly for reading of papers and discussion.

*The Students' Club*, to encourage athletics. The students' common room is governed by a committee of students.

*The Teaching Museum* has been very carefully arranged with the view of preparing students for their examination. Specimens, with descriptions, are arranged illustrating Dental Anatomy (human and comparative), Dental Surgery, Dental Mechanics, Microscopy, Materia Medica, etc.

Fee for the Special Lectures and Hospital Practice required by the curriculum, and supplementary fees for Metallurgy Class, etc., is £53 3s. in one payment; or if paid in two instalments, £55 13s. each year.

A fee of 3 guineas is payable for materials, etc., used in the Practical Dental Metallurgy Class.

A fee of 3 guineas is payable on entry for the use for two years of the Library, Students' Room, Students' Society, and Athletic Club.

} These are included in the above-mentioned sums.



An extra fee of 7 guineas will be payable for every extra six months' Hospital Practice.

A fee of 5 guineas is payable for the necessary instruction required by the College of Surgeons after failure at either of the Examinations.

Students who are not Mechanical Pupils of the Hospital, but who are referred at the Mechanical Examination, can receive the instruction required by the College of Surgeons, the fee being 15 guineas.

For a Single Course of Lectures in any subject the fee is £5 5s.

The fee for the complete curriculum—namely, three years' instruction in Mechanical Dentistry and two years' Hospital Practice and Lectures—is £175 if paid in one instalment, or 175 guineas if paid in three instalments of 75 guineas in the first year and 50 guineas each in the second and third years.

For one year's instruction in Mechanical Dentistry the fee is 50 guineas.

The fee for three years' tuition in Mechanical Dentistry is 150 guineas.

#### SCHOLARSHIPS AND PRIZES.

The Entrance Scholarship, of the value of £20, awarded in October. Subjects: Chemistry and Dental Mechanics.

The Saunders Scholarship, of the value of £20, awarded to the students obtaining the highest aggregate number of marks in the various class examinations.

The Storer-Bennett Research Scholarship, of the value of £50, awarded once in three years, and open to students who have obtained their qualification within six years of the award.

The Robert Woodhouse Prize, of the value of £10, for Practical Dental Surgery.

Class Prizes are awarded by the various lecturers.

The National Dental Hospital and College (founded 1861), Great Portland Street. *Dean*: Sidney Spokes.

The present building has only been recently erected, and the accommodation accords with the latest requirements for efficient teaching.

Two Entrance Exhibitions of the value of £40 and £20

are for competition at the commencement of each Summer and Winter Session, after an examination in the following subjects:

*Compulsory*—

1. Dental Mechanics, theoretical.
2. Dental Mechanics, practical.
3. Essay on a subject given at the time.

*Optional* (of which two, and two only, must be taken)—

4. Chemistry.
5. Physics.
6. Osteology (bones of the head).
7. Elementary Physiology (functions of respiration, circulation, and digestion).

All new students pass through a preliminary course under the care of a demonstrator.

The Mechanical, Bacteriological, and Metallurgical Laboratories are fully equipped, and under the supervision of competent teachers. Both in Practical Mechanics and in the other subjects every opportunity is afforded students to comply with the requirements of the Royal College of Surgeons.

Coaching lessons are held by the tutors prior to every examination.

There is an abundance of clinical material, and every opportunity is afforded for students to carry out the necessary work without delay.

Fee for the two years' Hospital Practice required by the curriculum, including lectures: £40 in one payment, or £42 in two yearly instalments of £21 each.

Registered dental students can receive the three years' mechanical training in the laboratory, under the best possible conditions. One month's trial fee, £5.

A composition fee has been arranged, covering both the three years' Mechanical Pupilage and the two years' Hospital Practice and Lectures required by the curriculum of the Royal College of Surgeons, amounting to £160 in one payment on entrance, or 160 guineas in three instalments of £63, £52 10s., and £52 10s., payable at commencement of the first three years respectively.

Guy's Hospital, Dental Department and School, London Bridge, S.E. *Dean* : H. L. Eason, M.D., M.S. *Clerk to the Dean* : Mr. S. H. Croucher.

Opened as a special department in 1889, the new dental buildings were completed in 1892. This is the only Metropolitan centre where all special and general work can be taken together in one place, other advantages being that beds are provided for injuries and diseases of the jaws, and that there are residential college rooms for about sixty students. The Summer Session is from the beginning of May till the end of July. There is a Travelling Scholarship of £100 every second year, the next award being in June, 1907. The usual appointments are open to students and two entrance scholarships of £20 each in Mechanics are awarded each year, one in April and the other in September.

Three prizes are awarded annually: First Year Students' Prize, £10; Second Year Students' Prize, £15; Practical Dentistry Prize, £10.

Instruction is given to students in making dentures, regulation plates, and mechanical appliances for the treatment of dental irregularities and oral deformities. Pupils for the Mechanical Apprenticeship are not accepted. The Mechanical Laboratory is under the care of a skilled mechanic.

*Preparation Classes.*—Before both the First and Final Examinations for the diploma of L.D.S., classes and demonstrations are given by the demonstrators.

*Fees.*—The fee for the two years' Hospital Practice required by the Royal College of Surgeons for the L.D.S., including lectures, is £50. The fee for instruction in general subjects in Guy's Hospital Medical School is £60, with a reduction of 8 guineas in the case of those students who have passed the preliminary Science (L.D.S.) Examination before entry.

The inclusive fee for the course of instruction for the M.R.C.S., L.R.C.P., and L.D.S. Eng. is 190 guineas paid in one sum, or 200 guineas paid by instalments at the commencement of each academical year—first year, 60 guineas; second year, 60 guineas; third year, 40 guineas; fourth year, 40 guineas.

A fee of 5 guineas is charged for the necessary instruction required by the College of Surgeons after failure at the First Professional Examination.

A fee of 3 guineas is charged for materials used in the Practical Dental Metallurgy Class.

No arrangements are made for short periods of instruction or separate courses of lectures. Further particulars, with prospectus, may be obtained from the Dean.

Birkbeck College, Breems Buildings, Chancery Lane, London, E.C

Day and evening classes are organized for instruction in the subjects of Science required by the qualifying bodies; special attention being given to the needs of students taking either the dental or conjoint medical examination of the Colleges. There are large and highly equipped laboratories for practical work in Chemistry, Physics, and Biology, and regular courses of study for the degrees of the University of London are conducted by recognised teachers of the University. (*See Index to Advertisements.*)

Birmingham Dental School and Hospital, Great Charles Street.

The Dental Hospital was founded in 1858, and the Dental School was formed in conjunction with the Queen's College in 1880. The present fine premises were opened on July 6 last year, 1905.

The hospital has an annual attendance of upwards of 10,000 patients.

The system of teaching is such that each student is required to learn and to satisfactorily perform operations in the various forms of filling, in regulations, extractions, with or without anæsthetics, and also in crown and bridge work, etc.

The various special Dental Lectures, and also the entire course of instruction in General Subjects, are provided at the University.

The new Mechanical Department is now arranged so that students may acquire the necessary skill in the making and fitting of dentures. All new students go through a systematic course of instruction with one of the

demonstrators before commencing work in the extracting and conservancy rooms.

The members of the staff give chair-side instruction daily.

Examinations are held annually, and the following prizes are offered for competition. Efficiency must be shown in the written, oral, and practical examinations :

General work - - - -	Certificates of Merit.
Anæsthetics - - - -	The 'C. Greene' Memorial. Silver Medal.
Essay on a given subject - -	C. Ash and Son's Prize.
Regulation cases (best series) -	A Prize.

*Fees.*—Twenty guineas for two years' Hospital Practice, payable in advance.

For three years' pupilage in the Mechanical Department the fee is 100 guineas.

University of Birmingham. *See also* Degrees in Dental Surgery.

The Degrees of Bachelor of Dental Surgery and Master of Dental Surgery of the University (B.D.S. and M.D.S.) are open to students who follow the requisite course in the University.

The Dental School forms an integral part of the Faculty of Medicine of the University of Birmingham, and, with the General, Queen's, and Dental Hospitals, affords the fullest opportunities for study to students preparing for dental degrees of the University and the diplomas of licensing bodies.

An Entrance Scholarship of the value of £37 10s. is offered annually.

*Dean:* Professor Gilbert Barling, M.Sc., F.R.C.S.

*Lecturers for the Dental Curriculum.*

Dental Anatomy - - -	J. Humphreys, M.D.S., L.D.S., F.L.S.
Dental Surgery - - -	F. E. Huxley, M.D.S., M.R.C.S., L.D.S. Edin.
Dental Mechanics - - -	A. E. Donagan, M.A., L.D.S. Edin.
Dental Metallurgy - - -	T. Turner, M.Sc.
Surgical Diseases of the Mouth - - - -	F. Marsh, F.R.C.S.
Medical Diseases of the Mouth - - - -	T. Stacey Wilson, M.D., M.R.C.P.
Dental Histology and Patho-histology - - -	Dencer Whittles, B.D.S., L.D.S. Eng.
Practical Dental Surgery -	W. T. Madin, L.D.S. Eng.

*Composition Fees.*—The Composition Fee for the courses required for the L.D.S. of any of the Corporations *alone* is £60; that for the courses required for the L.D.S. and the Degree in Dentistry of the University is £75; that for the L.D.S. in combination with the M.R.C.S. and L.R.C.P. is £85; and that for the M.B., Ch.B., and B.D.S. is £95. Each of these fees covers the cost of the courses given at the University for the qualifications indicated, but does not include incidental fees, nor fees for hospital teaching. Each of these composition fees is payable in two instalments, one on entrance, the other at the commencement of the second year of study.

Bristol—University College—Faculty of Medicine. Dental Department.

Students can complete at this College the entire curriculum for the Dental Diploma.

Prospectuses may be obtained on application to James Rafter, *Registrar*, or to E. Markham Skerritt, M.D., *Dean*.

Devon and Exeter Dental Hospital. *Hon. Secretary*: Henry Yeo.

Pupils of any member of the staff or other registered practitioner (being a Life or Annual Governor) are permitted to attend the practice of the hospital, subject to the approval of the Medical Sub-Committee, on payment of 5 guineas annually to the funds of the institution. Attendance on the practice of this hospital is recognised by the Royal College of Surgeons of England as qualifying for their Dental Diploma. Full particulars can be obtained of the Hon. Secretary.

Dublin—The Incorporated Dental Hospital of Ireland, Lincoln Place, Dublin. *Acting Dean*: A. W. W. Baker.

In addition to Clinical Instruction, courses of lectures and demonstrations will be given at the hospital in Dental Surgery and Pathology, Mechanical Dentistry, the Administration of Anæsthetics, crowns, pivots, porcelain inlays, gold filling, etc., Orthodontia and Dental Anatomy.



Special courses of three months' duration will be given to Surgeons about to join the Army and Navy, or to practise in the colonies or remote country districts.

Fees (all of which are payable in full and in advance)—Dental Hospital Practice: First year, 15 guineas; second year, 12 guineas; six months, 5 guineas; three months, 3 guineas.

In addition to the above courses, Registered Dentists who are members of the British Dental Association will usually be permitted to take out a three months' course for a fee of 6 guineas.

The three years' course in practical Dental Mechanics can be taken in the Hospital Laboratory.

Edinburgh Dental Hospital and School, 31, Chambers Street, Edinburgh. *Dean*: William Guy.

This hospital presents every facility for a complete dental training.

There are rooms for extracting, with and without anæsthetics, and every facility is given for the thorough acquisition of a knowledge of anæsthetics and their application.

Special facilities are also afforded in the mechanical department under the superintendence of the Lecturer in Dental Mechanics and his demonstrators, a large and fully-equipped workroom, under the charge and direction of a competent mechanic, having been set aside for the construction of dental appliances and general technical teaching.

Fee for two years' Hospital Practice, 15 guineas.

There is a Students' Society in connection with the School.

The Hospital admits a limited number of indentured pupils. They receive their instruction in mechanical dentistry concurrently with the general and special courses. A premium of 60 guineas is payable with each such pupil, the period of pupilage being four years.

Instruction in general subjects is obtained at the Medical School of the Royal Colleges of Physicians and Surgeons of Edinburgh.

The total fees for the necessary hospital practice, professional education, and diploma, amount to £90 7s.

The practice and lectures of the hospital qualify for, and are recognised by, all the Licensing Boards.

*Total Cost of Professional Study.*

General Subjects	..	..	..	..	£42	16	0
Special Subjects	..	..	..	..	31	16	0
					<hr/>		
					£74	12	0

*Cost of Diploma.*

First Professional Examination	..	..	£5	5	0
Final Professional Examination	..	..	10	10	0

Single courses for any of the special subjects may be taken for fees varying from 2 to 8 guineas. Full information will be forwarded on application to the Dean.

Glasgow Dental Hospital, 15, Dalhousie Street. *Dean* : J. R. Brownlie. *Secretary* : D. M. Alexander, 97, West Regent Street, Glasgow.

The managers of the Glasgow Dental Hospital have recently purchased and fitted up a thoroughly efficient Hospital and School at the above address. It is well lighted, the sanitary arrangements are complete, and the electrical installation is an efficient one. Students may enrol in October or April.

Fees for attendance at the Lectures and Hospital Practice, £28 7s.

The Medical Schools in connection with the Dental Hospital are the University, Andersonian, and St. Mungo's.

The fee for the two latter is 2 guineas for each subject except Anatomy (4 guineas). At the Glasgow University the fee for each subject is 3 guineas except Anatomy and Dissections (9 guineas). The fee for General Hospital Practice is 15 guineas.

Liverpool Dental Hospital and School of Dental Surgery. *Dean of the Medical Faculty* : W. B. Moore, D.Sc. *Warden of the Dental Hospital* : W. H. Gilmour, L.D.S. Eng.

The courses of systematic instruction are given in the University of Liverpool, five minutes' walk from the Dental Hospital. The two institutions are now affiliated, and

the management of the curriculum is in the hands of a joint committee.

At the Dental Hospital recent alterations have been made, and as it now stands this School offers advantages to students which are not excelled anywhere, and over 23,000 patients are treated annually.

The laboratory for practical mechanical work has been constructed so as to meet the requirements of the curriculum. A skilled dental mechanic works under the supervision of the Warden, and students are able to undertake at the hospital the whole of their training in Mechanical Dentistry.

The times of the lectures at the University of Liverpool are arranged to meet the convenience of students, thus allowing the maximum time for attendance upon Dental Hospital Practice.

The staff of the hospital includes twelve Honorary Dental Surgeons, two Anæsthetists, a Demonstrator, a Prosthetic Dental Surgeon, one House Surgeon with two assistants, and a Curator.

Fees for six months' Hospital Practice, 7 guineas; three months, 4 guineas.

Fees for two years' Hospital Practice, 20 guineas; for three years' Mechanical Course (or pupilage), £105.

The various Medical and Dental Lectures are given at the University of Liverpool.

The Anatomical Department contains an excellent collection of skulls illustrative of Human and Comparative Dental Anatomy.

The dissecting-room and theatre are lighted by electricity.

Admirable new laboratories of physiology and pathology, provided by the generosity of the Rev. S. A. Thompson Yates, were opened by Lord Lister in 1898. The new medical school buildings, with special lecture-rooms and facilities for the dental lectures, were opened last year (1905) by Lord Derby, and the new physics laboratories by Lord Kelvin.

The whole top floor of the building has been thrown into one fine, airy, and well-ventilated Operating Room. This room accommodates upwards of thirty operating chairs, which are of the 'Morrison' pattern, and each of

which has a special electric light (canting pendant) suspended before it. In the basement there are commodious lavatories for students.

On the ground floor there is a large Laboratory for Practical Mechanical work, with both top and side lights, well ventilated, and fitted with electric light; the equipment consists of all the necessary modern accessories.

*Composition Fees.*—All the requisite courses in Chemistry and Physics required by the new regulations of the Con-joint Board in the curriculum for the Licentiate-ship in Dental Surgery may be taken on payment of a composition fee of £11 11s. But this composition fee will only be accepted when the dental course is taken out at the University, and the first half of the further composition fee of £50, mentioned below, is paid at the same time.

The remainder of the courses required in the curriculum for the Licentiate-ship in Dental Surgery, excluding Dental and General Hospital Practice, may be taken on payment of a composition fee of £50, which is payable in two annual instalments of £25, one at entry and the other twelve months later.

The above composition fees do not include the fees for Dental Hospital Practice of £21, or for General Hospital Practice of £10 10s., required by the curriculum, which are payable to the respective hospitals. Degree Course (B.D.S.) for all Lectures (including Chemistry, Physics, and Zoology), £67 10s., in three instalments.

#### SCHOLARSHIPS AND PRIZES.

1. *Fletcher Scholarship.*—The late Mr. Fletcher, of War-rington, has established an Entrance Scholarship of £20 for one year. The Scholarship is awarded on the results of an examination (written and practical) in Mechanical Dentistry. The examination is held in October.

2. *Staff Prize.*—Awarded on the results of class ex-amination in Operative Dental Surgery. Seniors, £4 4s.; Juniors, £2 2s.

3. *Ash's Prize* of 2 guineas for the best paper on some subject in Dental Surgery.

4. *Medical Faculty Medals and Certificates.*—Torr Medal in Anatomy. Holt Medal and Bronze Medal in Physi-

ology. Bronze Medals for Elementary Anatomy and Histology. Book Prizes for Practical Anatomy.

5. Silver Medal and Certificates for Dental Anatomy and Physiology.

Manchester.—Victoria Dental Hospital, All Saints. *Dean :* William Simms.

The Victoria Dental Hospital is in association, for teaching purposes, with the Victoria University of Manchester and the Manchester Infirmary, both of which institutions are near. The accommodation within the last two years has been doubled in order to provide for the increasing number of patients and students attending the hospital. During 1901 over 20,000 operations were performed.

There is a very large population within easy reach of the hospital and there is abundant Clinical material to give the widest experience to dental students.

Students may enter for the recently instituted License in Dental Surgery, or the Degree of Bachelor of Dental Surgery of the University of Manchester, or for the License of the College of Surgeons of England, or other Licensing bodies.

In the Mechanical Department students have the advantage of the instruction of the Prosthetic Dental Surgeon, the Demonstrator in Dental Prosthetics and a competent mechanic. Students take impressions and do the necessary work in the mouth for the dentures required to be constructed in preparation for the first professional examination in Dental Mechanics.

Pupils are accepted in this department for the whole of the apprenticeship, either for the License or Degree, or extra courses can be taken by those who have already served an apprenticeship, and who desire further instruction.

In the Conservation Department a course of instruction in Practical Operative Dentistry is given by an appointed Demonstrator, so that students are made acquainted with the use of instruments, shapes of cavities, and the methods of performing the various operations of filling, extracting, etc., before being required to work in the mouth.

Clinical instruction is also given in gas administration by the Honorary Anæsthetists.

*Prizes.*—Prizes are awarded annually in July. The Fletcher Prizes consist of a first prize, value £8, for second year men, and a second prize, value £2, for first year men. The Operating Prize, value 3 guineas. A prize, value 2 guineas, is given by Messrs. Ash and Sons for the best essay on some subject in general surgery in connection with the teeth. Two prizes, value 1 guinea and 2 guineas, are offered respectively to first and second year men for proficiency in the extraction of teeth. A prize, value 2 guineas, is also given for the best series of regulation cases treated during the year. Two prizes in Prosthetic Dentistry, value 3 guineas and 2 guineas, are open to pupils taking Mechanical Apprenticeship at the hospital.

*Fees.*—Two years' Hospital Practice for the L.D.S., £21, payable in one sum, or in two sums of £13 13s. and £8 8s. at the commencement of first and second years respectively.

To students serving their Mechanical Apprenticeship at the Hospital the fee is £100, inclusive of the above Hospital Practice Fee. This may be paid in one sum, or in instalments.

The Hospital Fee for Degree Students is £130, inclusive of £100 for apprenticeship fee in Mechanical Dentistry. This may be paid in one sum or in instalments.

One year's fee to Degree Students in Mechanical Dentistry, £30 (up to 1910 the two first of the three years required for the course of work in Mechanical Dentistry may be taken in the laboratory of a registered dentist).

Fee for six months' Practical Dental Mechanics (optional), £20.

Newcastle-upon-Tyne.—The Newcastle-upon-Tyne Dental Hospital and School, 37, Nelson Street. *Dean*: R. L. Markham.

This School is conveniently situated near the University of Durham College of Medicine and College of Science (at Newcastle-upon-Tyne) and the Royal Infirmary.

Being in the midst of a densely populated neighbourhood, there is an abundant daily supply of patients and instructive cases.



The dental part of the curriculum has been carefully arranged to fulfil the requirements of the various examining bodies, and with a view to giving an education which the advance of modern dentistry demands, the importance of the practical part being given special consideration.

The rooms of the hospital are well lighted, and thoroughly equipped for carrying on the work. Dental surgeons and anæsthetists attend each morning and give demonstrations on treatment of the various methods of gold filling, crowning, crown and bridge work, regulation cases, administration of anæsthetics, etc.

Lectures are given during the Summer Session on Dental Surgery and Pathology, Dental Anatomy and Physiology, Dental Materia and Therapeutics, Dental Microscopy and Histology; and during the Winter Session on Dental Mechanics and Dental Bacteriology; while there is a Winter and Summer Course on Operative Dental Surgery.

Instruction in General Subjects can be obtained at the University of Durham Colleges of Medicine and Science, Newcastle-upon-Tyne.

#### Plymouth Dental Hospital, Plymouth.

The Dentists attend each day at 9 a.m. except Sundays. Pupils of any of the Dental Surgeons of the Plymouth Dental Hospital, or other Dentists holding a Diploma of the College of Surgeons, or members of the Odontological Society, may attend the hospital on the day of such practitioner as may agree to accept such pupils on the payment of 1 guinea per annum to the institution.

#### Sheffield Royal Hospital, Dental School.

The Dental Department of the Sheffield Royal Hospital is recognised by the Royal College of Surgeons, England. Particulars can be obtained of the Secretary of the hospital. The Dental School is now in conjunction with the Medical Department of the Sheffield University, opened last year by His Majesty the King.

Specially and beautifully-fitted rooms have been provided for the Dental Lectures in the medical block. Dental students will be able to take full advantage of the

teaching of the various departments of the University concerned in their special training. A new course of Practical Demonstrations in Dental Histology and Pathology has been added this session.

*Fees.*—Composition fee for Dental Lectures and Practical Classes, £20. Dental Hospital Practice, 20 guineas.

Fee for General Courses required by dental students: Composition fee of £30, subject to a reduction of £5 in the case of those students who have taken out courses of Chemistry, Practical Chemistry, and Physics prior to their admission as students of the Dental Department.

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### CLASSES AND DISPENSARIES.

London. — The Merrion Dental Prosthetic School, 97, Finchley Road, N.W. (near Swiss Cottage Station). W. Booth-Pearsall, F.R.C.S.I.

This School has been opened with a view of giving a practical training in Dental Mechanics to Dental Students.

The laboratory is spacious and fitted up with modern tools and apparatus, including electric motors and furnaces, compressed air and other modern appliances.

The teaching will be carefully graduated in harmony with modern and progressive methods. Oral instruction and demonstrations will be given to make the course interesting, in combination with bench and laboratory practice.

Post-graduate demonstrations and courses will also be arranged for practitioners from time to time, and every effort made to show the most practical methods of prosthetic dentistry in detail.

Leeds Public Dispensary. Dental Department.

The rooms comprising the dental department of the Leeds Public Dispensary are situated on the front floor, and on the whole are well adapted for the special work required, being well lighted—the conservative room also having skylights—are heated by hot-water radiators, and have a generous supply of electric light and power, and hot and cold water, and the floors are polished.

*The Waiting-room*, 23 feet by 15 feet, has seating accommodation for about sixty patients.

*The Ordinary Extracting Room*, 25 feet by 15 feet, at present contains two chairs, instrument cabinet, large fire-clay sink for use after extractions, a screen, lavatory for staff, etc.

*The Recovery Room*, 20 feet by 16 feet, for patients after administrations of anæsthetics, is provided with two lavatory basins, wire-woven couch, chairs, screens, etc.

*The Anæsthetic Room* is 25 feet by 17 feet. In fitting up this room the aim has been to render it as nearly aseptic as its construction and the nature of the work will allow. The operating table, instrument cabinet, anæsthetic cabinet, table, stool, dishes, etc., are all of enamelled iron and glass. The copper sterilizer (heated by gas) is upon a marble shelf. The chair is a Morrison, with wooden seat and back; the lavatory for use of staff is fitted with shower spray, the flow and temperature of the water being controlled by a foot lever; a large sink is provided for the use of the nurse. A Clover's ether inhaler, chloroform mask, and Hewett's  $N_2O$  apparatus, are included in the instruments.

*Nurses' Room*, stock room for linen, will also serve as preparation room for female patients before anæsthetics.

*The Conservative Room* is well proportioned, 51 feet by 19 feet, and will, when occasion arrives, accommodate about eighteen or twenty chairs. At present three chairs suffice, two Ash's hospital pattern pump chairs, kindly given by Messrs. C. Ash, Sons and Co., Ltd., and one twentieth century chair, complete with bracket table and cuspidor; these were generously presented by the Dental Manufacturing Co., Ltd.

Two of the chairs have adjoining them combined fountain spittoons with saliva ejectors and Allan tables; the spittoons are an improved pattern of those recently supplied by Messrs. Ash and Sons to the dental department of the London Hospital. A patent pattern suspension cord Columbia electric engine, a Cuttriss Wallis, electrically driven, and a Parson Shaw foot engine have been obtained. An electric light bracket with universal motion is supplied for each chair.

A substantial two-place work bench occupies one corner. A grinding-lathe and a polishing-lathe are run from counter-shaft, driven by  $\frac{1}{4}$  h.p. electric motor. Movable electric light standards and gas fittings for blowpipes, etc., are in

position. The sterilizer is electrically heated, and a switch-board and transformer will furnish current for cautery, hot-air syringe, etc., but the inlay furnace and gold annealer will be wound to run direct from the power plugs. Cabinets for instruments, writing-desk, cupboard and two nests of lockers for the members of the staff, chairs, etc., complete the present equipment.

### GENERAL MEDICAL SCHOOLS.

At the Middlesex, Charing Cross, and Westminster Schools, and King's College, the times of Lectures are specially arranged to suit dental students.

Bartholomew's Hospital, Smithfield, E.C. Special arrangements for *Dental* students have been discontinued.

Charing Cross Hospital Medical School, Chandos Street, Strand, W.C. *Dean*: Mr. Herbert F. Waterhouse.

As one of the Medical Schools of the University of London, by its proximity to and long association with the Royal Dental Hospital of London, and the arrangements made for the convenience of dental students, this educational centre enjoys advantages which are much appreciated by the profession. There is an Entrance Scholarship of 30 guineas, open to dental students only, and practical instruction in Dental Surgery is given during both Winter and Summer Sessions, when students may be appointed as assistants for a period of three months. Special tutorial classes are also regularly held. Fees: General course for L.D.S. only, 55 guineas; or 61 guineas may be paid by two instalments of 31 and 30 guineas respectively. And there are special classes for optional subjects and examinations. (*See Index to Advertisements.*)

King's College, Strand, W.C. *Dean of the Medical Faculty*: Professor W. D. Halliburton.

The tabulated list of lectures is so arranged that dental students who are taking out their general work at King's College can easily attend the Lectures at the Dental Hospital of London.

Composition fee: Dental students, 60 guineas.

London Hospital and Medical College, University of  
London, Mile End, E. *Warden* : Munro Scott.

*Dental Department.*—Mr. Dolamore and Mr. Farmer give practical instruction during the Winter and Summer Sessions on Mondays, Tuesdays, Wednesdays, and Thursdays at 9 a.m. Dental Dressers must undertake to attend regularly on Mondays and Thursdays, or on Tuesdays and Fridays, for three months. Students are strongly advised to hold these Dresserships.

*Dental Assistants.*—Two or more Dental Assistants are appointed every three months. The terms of office date from the first Tuesday in January, April, July, and October.

Composite fee for dental students: Hospital Practice and Lectures, £42.

Middlesex Hospital Medical School, Mortimer Street,  
London, W. *Dean* : John Murray.

This school of the University of London has a long and intimate connection with dental education, extending back to the founding of the Dental Hospital of London in Soho Square, and its proximity to both the National Dental Hospital in Great Portland Street and the Royal in Leicester Square is a geographical advantage always much appreciated. There is a Residential College with accommodation for about thirty students. Residents in the college need not necessarily take the full course. Gentlemen holding appointments as House Physicians or Surgeons have free board and residence. Among numerous scholarships and prizes, the Entrance Scholarships of £100 and £60 are open to those commencing medical study in either May or October. The times of lectures on General Subjects are arranged for the convenience of dental students taking special courses elsewhere, and the experience and traditions during many years of the requirements of dental work greatly facilitate these arrangements. The composition fee for dental students is 54 guineas, or in two instalments of 40 and 20 guineas. A special tutorial class in Surgery is held by Mr. T. H. Kellock, F.R.C.S., intended for dental

students preparing for the final examination. (*See Index to Advertisements.*)

St. George's Hospital, Hyde Park Corner, S.W. *Dean :* Francis Jaffrey, F.R.C.S.

Dental pupils are admitted to all the courses of the General Medical Curriculum that are required for a Diploma in Dental Surgery, exclusive of that in Practical Chemistry, for a composition fee of £50, or by the payment of £30 at the commencement of their first year, together with a library subscription of 1 guinea; £25 at the commencement of their second year, together with a library subscription of 1 guinea.

St. Mary's Hospital, Paddington, W. *Dean :* Dr. H. A. Caley.

Composition Fee for the General Hospital Practice and Lectures required for the Examination in Dental Surgery at the Royal College of Surgeons, England, £52 10s., payable in one sum, or £57 15s., payable in two instalments—first year £31 10s., second year £26 5s.

St. Thomas's Hospital, Albert Embankment, S.E. *Dean :* J. H. Fisher, M.B., B.S. Lond.

The fee for attendance on the *general* subjects required of students in Dental Surgery is for the two years £65, or, by instalments, £55 for the first year, and £15 for the second year. If certificates for *Dental* practice are also required, the special fee for that subject has to be paid, *i.e. :*

Three months	..	..	..	..	£5 5s.
Six     ,,	..	..	..	..	10 10s.
Twelve   ,,	..	..	..	..	15 15s.

An extra charge is made towards the cost of materials and apparatus used in practical classes.

University College, London, Gower Street, W.C. (University of London). *Dean of the Faculty of Medicine :* Professor Risien Russell, M.D.

The fees for subjects required at a general hospital by the Dental Curriculum is 65 guineas, or exclusive of



Chemistry, Practical Chemistry, Physics, and Materia Medica, 50 guineas. Entrance Scholarships and Exhibitions will be awarded on the results of examinations to be held in September.

Westminster Hospital Dental Department. Westminster Hospital Medical School, Caxton Street, S.W. *Dean*: E. Percy Paton, M.S., M.D., F.R.C.S.

Incorporated with the Medical Faculty of the University of London, this also shares with St. Thomas's Hospital Dental Department special recognition for dental hospital practice, though unattached to a dental school. The lectures in the General Course are arranged to suit students also attending the special dental hospitals. There is an Entrance Scholarship of £20 for dental students. There are special courses and classes for optional subjects, and London University Examinations open to others than regular students, and many scholarships for regular students at both the Summer and Winter Sessions. Prizes and the usual appointments are awarded in the Medical School.

The fees for the *general* Surgical Practice and Lectures required for the Dental Diploma of the Royal College of Surgeons may be paid in one of two ways, viz.:

1. In *one* payment on entrance, 50 guineas.
2. In *two* payments of £27 10s. each, to be made at the commencement of each academical year.

These payments include the library fee and membership of the Clubs' Union for two years.

Students who become general dental students, as above, may enter for the special practice and lectures at the Dental Hospital of London in Leicester Square, within easy reach of the Hospital, or at the National Dental Hospital, Great Portland Street, for the study of Practical Dentistry. Lectures are delivered on Metallurgy, Dental Mechanics, Dental Surgery and Pathology, and Dental Anatomy and Physiology. (*See Index to Advertisements.*) *See also American Dental Colleges.*

**Collodium.** Various forms of collodion, some very little known, are of use in dental surgery (*see Anodyne Colloid and Amyl Colloid*). Collodions with salicylic acid, and

with or without zinc chloride, have been used for epithelioma. The well-known styptic colloid is composed of: Absolute alcohol 10, benzoin 1, tannic acid 10, ether 40, gun-cotton 1; but is not easy to make well.

If to an ounce of this 20 grains of carbolic acid are added, a useful preparation which may be diluted with ether is obtained, very efficacious on wool for pulpitis as a temporary dressing. It induces a certain amount of anæsthesia in cavities and on the gum.

**Congress, International, Dental, and Medical.** *See Societies, etc.*

**Consolidated Dental Manufacturing Co.** *See Manufacturers, etc.*

**Contenau and Godart Fils.** *See Manufacturers, etc.*

**Conversion of Decimal Weights.** The following hints are given by *W. M. Gabriel* and *Leonard Brown*. The first figure to the right of the decimal point (representing, as it does, tenths of an ounce) is doubled, this giving the number of pennyweights. If, however, the next figures are over 50, 1 is added. The second and third figures are next divided by 2, this giving the number of grains. If, however, they are over 50, and 1 has been added to the number of pennyweights, 50 is subtracted before division. Thus, let us say, 0·731 ounce is to be reduced to pennyweights and grains. Doubling the 7 gives 14 dwts., and dividing the 31 gives  $15\frac{1}{2}$  grains. Answer, 14 dwts.  $15\frac{1}{2}$  grains. Again, let us say 0·579 ounce is to be reduced to pennyweights and grains; doubling the 5 gives 10, but as 79 is more than 50, 1 is added—*i.e.*, 11 dwts.; subtracting 50 from 79 gives 29, which, divided by 2, gives  $14\frac{1}{2}$  grains. Answer, 11 dwts.  $14\frac{1}{2}$  grains.

This method is not absolutely correct. It assumes 25 grains to the pennyweight in place of 24, and, consequently, 500 grains to the ounce in place of 480. There is another method by which the same results may be

obtained, and which may, perhaps, be considered more simple in that no thought need be taken as to the figures coming second and third after the decimal point being over or under 50, and, consequently, no need for the small additions and subtractions which his method requires. By dividing the first two figures to the right of the point by 5 the number of pennyweights is ascertained, and further dividing the remainder by 2 gives the number of grains. Thus, if 0·731 ounce is to be reduced to pennyweights and grains,  $73 \div 5$  gives 14 dwts., and the remaining  $31 \div 2$  gives  $15\frac{1}{2}$  grains. Again, in the case of 0·579 ounce to be reduced,  $57 \div 5 = 11$  dwts., while the remaining  $29 \div 2 = 14\frac{1}{2}$  grains.

**Copper sulphate** in root canal fillings, mixed with anything ordinarily used, is highly recommended by *Mr. Richards* (*B. D. J.*, XXIV., p. 140). Copper citrate ('cuprocitral') has lately been largely used in surgery for the effects which the sulphate are depended upon in oral treatment. In ophthalmic practice it has given good results.

**Council.** See **General Medical Council**.

**Coxeter and Son, (S.).** See **Manufacturers, etc.**; also, *Index to Advertisements*.

This firm were among the pioneers of the manufacture of nitrous oxide gas, especially in liquefied form, and the supply to dealers of all accessory apparatus in its administration. It was largely due to the co-operation of Messrs. Coxeter and the insistent energy of the late Dr. Evans that in 1870 the supply of liquid gas was available. Dr. Evans ordered repeatedly from Messrs. Coxeter large quantities of this liquid gas for the Paris ambulance during the Franco-German War. The firm do not now supply to the profession direct, but their gas and apparatus is distributed through the usual dealers and depots.

**Crowns.** To the multitudinous forms of crowns, all gold,

gold or platinum and porcelain, and porcelain with either fixed or removable independent pins, the past year has added the simple vulcanite and the all porcelain crown. The latter is practically a shell of porcelain, best made to each case upon a matrix roughly adapted to a tooth or remains of the one it is to cover. Operations are reported as being successful in the preservation of a living pulp, where a tooth is badly discoloured, broken, or decayed, but without pulp exposure, by what must be considered as a new procedure made possible by the facilities for porcelain work. In such a case the tooth is trimmed down to, roughly, a conical form, as much hard tissue as possible down to the gum margin being removed without exposing the nerve. In some cases the procedure can be greatly simplified, without making a special crown, by fitting over a model of this a 'countersunk' or any hollow form of porcelain tooth, by grinding the latter with small conical carborundum or gem stones, and simply cementing to place. See 'A New Porcelain Crown,' by C. H. Worboys, in *B. D. J.*, XXVI., p. 1102. When this is impracticable, a roughly-fitting platinum matrix is made, which need not be closely adapted except at the gum margin. Here, if possible, the neck of the tooth should be reduced to a slight step, in order that the resulting porcelain crown may have a square edge instead of a weak feather one.

This roughly conical matrix is built upon with porcelain body, but on its outer surface instead of the interior, as in usual inlay matrices. Of course, great skill and experience is required to produce an artistic and presentable tooth in shape and colour; but the assurance is given that when cemented in position these frail crowns show considerable strength and endurance. When all the conditions are favourable, and the difficulties are successfully overcome, the operation may be regarded as the *ne plus ultra* of modern prosthetic restoration.

Obviously, the plan is most suitable for the canines and central incisors, where some bulk and strength of material can be obtained, but there are reports of its adoption upon molars also.

Whether the preservation of the pulp is worth the difficult and ever-uncertain operation, time alone can show. A most desirable outcome, if it seems promising, will be the manufacture of ready-made hollow or shell porcelain crowns in sufficient variety, which would resemble the so-called 'countersunk' pattern, but without pins. The absence of pins should greatly simplify the make, as naturally also eliminating a weakness in all frail porcelain teeth.

Of other porcelain crowns or 'pivots,' there is a growing preference for those with separable or independent pins or posts, which is a return to the Bonwill principle. It cannot, of course, be said that a cemented pin in a tooth is as strong as a fused one, such as the Logan or Robbins; but the opportunities and facility for selection, adaptation, and repair in case of breakage may compensate for this. With many workers in this specialty, when a fairly straight and sound root canal is available, the favourite form of pin is a slightly tapering course screw, which, if put in with a slow-setting cement, affords almost the ideal attachment to root; and if the metal is not too hard, it can be then bent with impunity to suit the crown. Otherwise a rectangular or half-round section is preferable, and in all cases a mechanical fit to the canal, if possible, plus cement is very desirable. It is found that a thin layer of cement, however tenacious and dense, is liable to be broken up when subjected to alternating strains or torsion.

In most cases where a gutta-percha setting fails it is found to be caused by rotational forces. Next to a firm screw the ideal adaptation of a pin to root is pro-

bably that in which the canal is of elliptical section; and the pin of a rectangular, or H-girder section, such as the Logan, so adjusted to fit that it cannot turn or move, and then carefully cemented in. In such a case it is immaterial whether cement or gutta-percha is used, and certain advantages are claimed for the latter by many operators. In extemporizing a porcelain crown, where a porcelain furnace outfit is at hand, one of the many pinless or 'diatoric' patterns of teeth can be utilized very easily, either fusing the pin to it, or arranging for it to be cemented over the pin fixed in the root. It should be remembered, however, that these have not the same strength as other forms of construction. Nearly every maker of teeth has a practical pattern of separable pin crown, but we regret that some of the most artistic, such as Justi's, are not seen on the market in this country.

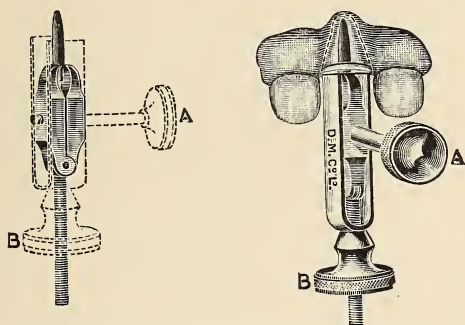
Among such mineral crowns, the *Dowel Crown* of Messrs. Ash is worthy the attention of the operator. The apex of the *Dowel Crown* is countersunk and roughened to receive the fluted, spear-shaped dental alloy pin, which is fastened into the crown with cement in the usual manner. A bifurcated pin can be obtained for double-rooted bicuspid.

The manufacture in large numbers and great variety of economical porcelain crowns should be encouraged in every way by the profession, as probably no other operation in prosthetic work gives so much satisfaction to both patient and operator, and is less open to hygienic objection.

Crown-work is exhaustively treated in a book by *Dr. Hart J. Goslee*, published during 1903, in which almost everything bearing upon the fundamental principles involved in single crowning or 'pivoting,' excluding 'bridge-work,' seems to be discussed with ample illustrations. There can be no doubt that generally more attention is now devoted to the single crown restoration of teeth,



since the artistic value of inlay work and the inherent disadvantages of complicated bridges have been more fully appreciated. The type of the pin-cum-porcelain crown is still the Logan, of which the Robbins' and others are modifications claiming improvement. Types of the 'separate' form are the Davis, the Justi, the Leon Williams, and Ash's dowel crown, of which there are many modifications. The increased use of small convenient furnaces has much extended the possibilities of constructing special crowns with or without collar-bands. In the use of gold collars, of course, low melting or fusing enamel is employed ; but with



C. E. BROWN'S PIVOT EXTRACTOR.

high-grade body bands of platinum or platinum alloy can advantageously be combined. Much in our literature has been devoted to the methods of removing platinum or other metallic pins from roots by drills, trephines, solution of cement by ammonia, etc. A very ingenious little instrument for extracting a pivot pin has been designed by Mr. C. Every Brown, and made by the Dental Manufacturing Company. But except where the pin itself has broken off very short, it is perfectly unnecessary and most undesirable to disturb it. Even when only slightly projecting, but too short to sufficiently enter the cavity of

a countersunk porcelain crown, the tight wedging upon it, with cement, of a short length of tube, may be quite satisfactory.

Unfortunately, the most universally used and most readily made form of crown or pivot—viz., the old-fashioned flat-plate tooth with backing, base, and pin—is, after all, the most difficult to replace or repair in case of fracture. One or more of the many methods of the 'crown and bridge repair outfits' are sometimes available, and very great ingenuity has been displayed in descriptions of special methods of dealing with these cases. Where the old platinum pins are still remaining fixed to the original backing, special forms of flat porcelain teeth are now made with holes or grooves into which the pins can be cemented. This is undoubtedly the simplest and most facile method when possible. When new holes for pins are drilled in a backing, and the backing is too thin or otherwise unsuitable for the screw-nut method of repair, it is stated on good authority that if the backing and pins are cleaned and roughened, and the latter bent together, amalgam packed around them makes a secure repair if the 'bite' permits. The crowning of cavernous and frail roots presents the greatest difficulty, which in each case the mechanical ability of the operator must surmount according to the conditions. An interesting method in such cases is described by *Mr. J. Blight* (*B. D. J.*, XXIV., p. 323).

The many ingenious processes of ready-made teeth plus added porcelain have in very many cases been superseded by the making of one large porcelain restoration, which (though on the same lines) can hardly be called an inlay. In fact, many broken-down teeth, especially those much disfigured on the frontal aspect, which were formerly crowned, are now restored by large contour pieces of fused porcelain, as their attachment with cement, etc., has

on the whole proved sufficiently satisfactory if all occlusal strains are carefully considered.

As the introduction into the market of machines for the facile production of all gold shell-crowns makes the use of these temptingly profitable constructions very easy, it should be particularly noticed that the mandril and drawing processes frequently reduce the thickness and strength of the gold plate to an extent not realized until, after a comparatively short period of wear, they fail, and have to be replaced or patched up. Otherwise, and taking proper precautions, the 'thimble' crown for posterior teeth has proved an eminently satisfactory operation.

**Cupri Citras** (Cuprocitrol). *See Copper.*

**Cupri Sulphas.** *See Copper.*

#### D.

**Decalcified Bone.** For the restoration of contour in replacing bone structure and alveolar process lost through necrosis, absorption or accident, by implantation as a substitute for sponge grafting; chips of aseptic bone are prepared as follows: Remove all periosteum and medullary tissue from the most compact portion of a fresh tibia or femur of the ox or sheep, cut into strips of  $\frac{1}{8}$  inch in diameter, and soak in large quantity of 10 to 15 per cent. solution of hydrochloric acid, renewed daily for a fortnight. Wash in weak solution of caustic potash, cut into required lengths, and soak for two days in 1 to 1,000 solution of bichloride of mercury. Keep in a saturated solution of iodoform in ether. Before use, dissolve out excess of ether and iodoform with alcohol.

Very fine shavings of such prepared bone, or cancellous tissue, have been also used with satisfaction, being absorbed in the promotion of healing with a minimum loss of substance.

**Decay.** *See Caries.*

An interesting treatise upon 'The Cause, Results, and Prevention of Dental Decay,' is reprinted in the *Dental Surgeon* (I., X., p. 151), as a Paper, with discussion, read by *Dr. L. Henry* before the Victorian Branch of the B.M.A.

**Defense, La.** *See Journals.*

**Degrees in Dentistry**, by which are understood academic titles or distinctions conferred by a University as distinguished from the qualifying diplomas or licenses to practise at present given by the Colleges of Surgeons of the United Kingdom, have been the subject of much discussion in the profession, culminating in 1904.

The matter was brought to a head principally by two accomplished facts—viz., the establishment of a dental degree by the new University of Birmingham, and by the reconstitution of the University of London as a teaching as well as a degree granting body. It was understood that the latter had definitely discussed the matter, and there were representatives of both the medical and dental profession upon the Board of Studies appointed by the Senate, who thought that the question was one upon which the profession should definitely pronounce.

The concentration of medical preliminary study under the direction of the University had practically taken form in a recommendation that the subjects of the first year or two of medical work should be at one or more centres under the direct supervision of the Faculty (possibly including South Kensington and Gower Street), and as these would largely embrace the present dental curriculum, it was only natural to view as a practical future possibility the recognition of dental specialism in surgery by some suitable University honours, especially as it was an open secret that other provincial Universities (including Dublin) were moving in that direction.

Those who favoured the scheme were, we believe, actuated by a desire to establish in the Metropolis a standard as high as possible, which it was felt the London University, if acting at all, would not fail to do. Its opponents dreaded the multiplicity of titles or diplomas, on the ground, firstly, as a slight upon the high standing of the present L.D.S., and, secondly, as tending to confusion and indifference in the public mind. Much can be, and has been, said in support of these propositions.

At many of the meetings of branches of the British Dental Association for several years past the matter had been formally promulgated and discussed, and communications have passed between the dental schools of London and elsewhere and the authorities of the London University. But as unanimity was wanting upon the governing and consultative bodies of the University, the annual meeting of the Association was considered by many as a proper occasion for some pronouncement, which would at least afford guidance as to the opinion of a large and important section of the profession.

Accordingly, at the June meeting in 1903 the following resolution was passed by a small majority :

‘That as the question of a degree for dentists is at an early date coming before the Senate of the University of London, the Representative Board be requested at its next meeting to consider the advisability of presenting a memorial to the Senate dealing with the question, and to take action thereon.’

The interesting discussion upon the motion is fully reported in *B. D. J.* (XXIV., p. 487), but the effects of the action taken were somewhat stultified by the ruling of the President, that the Board could not itself memorialize the London University upon the resolution. At the next ordinary meeting of the Board, in view of this, it was

decided to take the quite unique and unprecedented action of calling a special extraordinary meeting of the Association in London in January, 1904, to decide this point. At the Board meeting, as reported in *B. D. J.*, XXIV., p. 805, the mover of the original resolution (Mr. BADCOCK) said he had come to much the same conclusion, namely, that in view of the great divergence of opinion at the Brighton meeting on the subject, and in view of the fact that the resolution was carried by a very small majority, and also that, having been carried, there was a very grave question as to its interpretation, whether or not, if they decided that a memorial should be sent to the University of London, they had the power to send it, he came to the conclusion it would be very much better, although he still regarded the matter as somewhat urgent, to wait until the Annual General Meeting before taking any further steps. He therefore moved: 'That in view of the divided opinion of the meeting at Brighton on the question of a degree for dentists at the University of London, the Board considers it undesirable to at present approach the Senate on the subject, but requests the Executive to invite the contribution of papers *pro* and *contra* for the next meeting of the Association at Aberdeen, with a view to an adequate discussion on the subject.'

Dr. CUNNINGHAM proposed an amendment to the effect that it would be well to call a special general meeting to consider the point. The reason he advanced was that the subject had been very carefully considered by the branches, and he thought the time was ripe for coming to some decision on the question. He thought it would be more becoming the dignity of the Association and the importance of the subject if a special meeting were held for its consideration.

The amendment, seconded by Mr. HEADRIDGE, 'That a special meeting of the Association be called with a view to



the consideration of the subject,' was then put and carried, 17 voting for and 10 against.

In accordance with this, a special extraordinary general meeting of the Association was convened for Saturday, January 23, 1904, at 2 p.m., in the Examination Hall, Victoria Embankment, London. The following resolution was proposed by Mr. J. H. Badcock: 'That a memorial be presented to the Senate of the University of London praying for the institution, in the interests of dental science, the public, and the dental profession, of a Degree in Dental Surgery in the Faculty of Medicine; but expressing the further opinion that it would be undesirable to make the possession of the M.B., and B.S. degrees a necessary qualification for such a degree.'

The meeting was eminently representative, and attended by a large number of members from every part of the three kingdoms. Mr. J. H. Badcock's resolution having been put and seconded by Mr. Leonard Matheson, the following amendment was proposed and seconded: 'That the creation of Degrees in Dentistry is undesirable; and that the opinion of this meeting, specially summoned to consider the expediency of a Degree in Dentistry, be communicated to the authorities of the Universities of the United Kingdom.' This amendment was carried by a large majority: 175 voted for it, and 87 against. No vote by proxy was allowed.

Previously to this meeting, and after the issue of the summons, the afore-mentioned amendment was endorsed by 493 members of the Association, the majority of whom, living in distant parts of the three kingdoms, were prevented from attending the meeting.

Upon this subject the following extracts from an article by *Mr. Norman G. Bennett* (*B. D. J.*, XXIV., p. 737), entitled 'An Imperial Degree in Dentistry,' are pertinent and interesting:

‘ Under these circumstances we look to the reconstituted University of London to maintain those high standards for which it has always been famous, and to grant only those degrees which, at least as regards stringency of examination, shall be recognised throughout the Empire as the best of their kind. An Imperial degree in dentistry, then, is only desirable if it take rank as the highest distinction open to the student ; it can only justify its existence by acting as a passport, for those who possess it, to the best public appointments now and in the future to be open to the dentist.

‘ Now, although, as I said before, the multiplication of diplomas is to be deprecated, and although it is unfortunate that changes calculated to confuse the public should be initiated just when the meaning of the L.D.S. has become more or less understood, yet in this matter one must have regard to the pressure of outside forces and the tendencies before referred to, and I think that the recognition of dental surgery by the University of London and the institution of a degree would be of material and lasting benefit both to the profession and the public.’

An extended exposition of these opinions was embodied in a paper before the Metropolitan Branch of the B.D.A., which produced an excellent debate (*B. D. J.*, XXIV., p. 781).

The only effect, however, of the action taken by the profession in 1904 has been to discourage up to the present the London University and the older ones in the matter, as the younger Universities of Manchester and Liverpool, joined by Dublin, have followed the example set by Birmingham. One effect of this has been to reopen the questions, firstly, whether such degrees should be obtainable only as an additional qualification, and so registered ; or whether they might, when taken *ab initio*, be regarded

as qualifying ones, entitling to registration forthwith as such. So important had become the matter that the General Medical Council was obliged to give it serious consideration. In its May session of last year a resolution was passed authorizing the president to take the opinion of the legal advisers of the Council as to whether degrees granted in dental science and dental surgery by Universities in the United Kingdom are registrable as primary qualifications to practise dentistry ; and at the later session in November there was presented and read to the Council the following opinion by Mr. S. G. Lushington, given on June 5, 1905, in regard to the dental degrees of the Universities of the United Kingdom :

‘ Provided that the degrees granted in dental science and dental surgery by Universities in the United Kingdom are granted by Universities possessing the right to choose members of the General Medical Council under Section 7 of the Medical Act, 1886, and are evidenced or accompanied as a result of examination by certificates from those Universities of the fitness of the graduates to practise dentistry or dental surgery, such degrees are registrable as primary qualifications under the Dentists Act, 1878.

‘ This clearly appears to be the result of Sections 6, 7 and 18 of the Dentists Act, 1878. By Section 6 (*a*) any person who is a licentiate in dental surgery or dentistry of any of the medical authorities shall (amongst others) be entitled to be registered under this Act. By Section 18 any person who obtains from any of the medical authorities having power for the time being to grant surgical degrees, after examination for the purpose of testing his fitness to practise dentistry or dental surgery, a certificate of such fitness *shall be* a licentiate in dental surgery or dentistry of that medical authority. And by Section 7, where a person entitled to be registered under this Act produces or sends

to the General Registrar the document conferring or evidencing his license or qualification, with a statement of his name and address and the other particulars, if any, required for registration, and pays the registration fee, he *shall be* registered in the Dentists' Register.

‘What the Act of Parliament, therefore, requires in substance is the possession of a certificate of fitness granted after a test by examination by a properly qualified Examining Body. It does not regard the title conferred by the Examining Body upon the successful examinee, nor the comparative difficulty of the examination, but if the result is to establish his fitness to practise by a certificate which may be taken as satisfactory, then the Act calls him a “Licentiate,” and declares him entitled to be registered.

‘The degrees in dental science and dental surgery to be granted by the University of Dublin and the Victoria University of Manchester, although they may be evidence of a greater amount of knowledge than that which is required in each of those Universities respectively for the license in dental science or the diploma in dentistry, must, therefore, if they are to be primary qualifications for registration, carry with them a certificate of fitness such as the Act requires, but if they do that, then for the purposes of the Act the holder, though he be called in his University a Master in Dental Science or a Bachelor of Dental Surgery, is by the Act included in the generic term “Licentiate in Dental Surgery or Dentistry,” within the meaning of the Act, and becomes as such entitled to be registered on production of his certificate and payment of his fees.’

Upon this straightforward and luminous decision on common-sense lines of a matter which it is difficult to see how the most conservative prejudice could have questioned,

it was on the motion of Mr. Tomes, seconded by Sir Victor Horsley, resolved :

‘ That the Registrar be directed to accept for primary registration in the Dentists’ Register certificates of degrees in Dental Science or Dental Surgery granted after examination by Universities in the United Kingdom.’ *See Education.*

**Density of Gold Fillings, The.** *William Gass Grayston* recalls the fact that melted refined gold has a specific gravity of 19.0, slightly increased by hammering ; and collating his experiments with those of Dr. Black, he puts the practical density of fillings made in the mouth at 17.0. He considers the relation between density and adaptation such that a dense filling must be perfectly adapted, but that a well-adapted filling need not be dense. The latter condition is usually unattainable with cohesive gold, and the force required for solidity and perfect adaptation is very great, and frequently impracticable.

**Dentaire, Le Progrès.** *See Journals.*

**Dental Brief, The.** *See Journals.*

**Dental Cosmos, The.** *See Journals.*

**Dental Digest, The.** *See Journals.*

**Dental Era, The.** *See Journals.*

**Dental Journal, Dominion.** *See Journals.*

**Dental Journals.** *See Journals, Periodicals.*

**Dental Manufacturing Co., Limited, The.** *See Manufacturers, etc.*

**Dental Office and Laboratory, The.** *See Journals.*

**Dental Protective Association of the U.S.A., The.** *See Protective.*

**Dental Protective Supply Co.** *See Manufacturers, etc.*

**Dental Record, The.** *See Journals.*

**Dental Register, The.** *See Journals.*

Dental Review, The. *See Journals.*

Dental Summary, The. *See Journals.*

Dental Surgeon, The. *See Journals.*

Dental Surgeon Exhibition. *See Exhibition.*

Dental World, The. *See Journals.*

Dentifrices. *See Tooth-powders.*

Dentists' Magazine. *See Journals.*

Dentition.

**MILK TEETH:** The first dentition begins at the sixth or seventh month, and is completed by about the second year.

Central incisors	..	..	..	{ (1) lower, sixth month.
				{ (2) upper, seventh month.
Lateral	..	..	..	{ (1) upper, ninth month.
				{ (2) lower, tenth month.
1st molars	..	..	..	Twelfth month
Canines	..	..	..	Eighteenth month.
2nd molars	..	..	..	Second year.

The full primary dentition is twenty teeth, ten in each jaw.

#### PERMANENT TEETH:

1st molars	..	..	..	..	5 to 7 years.
Lower central incisors	..	..	..	..	6 to 8 ..
Upper central incisors	..	..	..	..	7 to 8 ..
Lateral incisors	..	..	..	..	9 ..
1st bicuspid	..	..	..	..	10 ..
2nd bicuspid	..	..	..	..	11 ..
Canines	..	..	..	..	12 ..
2nd molars	..	..	..	..	12 to 13 ..
3rd molars (wisdom)	..	..	..	..	15 to any age.

The full dentition is thirty-two teeth, sixteen in each jaw.

**Dentures.** In upper suction plates, according to *Dr. Haskell (Dental Brief)* the essentials to success are, perfect plaster impressions; preparing the model by flaring the sides so that it will drop from the mould and not have to be lifted out; placing a thin film of wax over the hard centre to avoid undue pressure either at the time of the making of



the plate or afterward as the alveolar ridge may settle; using oiled sand, as it greatly facilitates the work; using Babbitt metal for the die, as this is the only metal or alloy which has all the requisites for a dental die; carrying the plate as high as it can be worn all around, and always higher over the canine than elsewhere, and the gum fuller; and, finally, securing perfect occlusion, more depending upon this than upon anything else, always remembering that the six anterior teeth should never interfere.

**Dentures.** Vulcanite with Clasps. An accurate method of adjusting bands or clasps used with a rubber plate is described as follows:

After the teeth have been ground and articulated, the plaster tooth to be clasped is broken off at the gum line and replaced with a very thin film of wax. The clasp, having been previously fitted, is cemented to the plaster tooth and the case flaked. In separating after boiling, the plaster tooth and clasp come away with the plate teeth, and the spur of the clasp is then packed the same as the pins. Enough time should elapse between the cementing of the clasp and the boiling out to allow the cement to thoroughly set (*J. Arthur Standen, in Cosmos*).

**Deterioration of the Teeth** (*see Parliamentary Inquiry*), especially in relation to the findings of the Inter-departmental Commission, has been discussed at length in the dental, medical, and general press, most fully in an editorial in *B. D. J.* (*XXV.*, 692), by Dr. J. Simm Wallace at the Oxford meeting of the B.M.A., at the annual meeting of the B.D.A. (*B. D. J.*, *XXV.*, p. 861), and by Mr. W. H. Dolamore (who gave evidence before the Commission) at the Metropolitan Branch discussion, reported at length in *B. D. J.*, *XXVI.*, p. 1. Upon the primary question as to whether, as a fact, teeth were worse than they used to be, Mr. Dolamore says:

‘Although the title suggested for the discussion, in

which I invite you to join, lacks precision, I take it that we dentists are agreed what is the general condition of the teeth to-day. They are bad. We think they are bad. Anatomists, physicians, military and naval authorities, preachers, and teachers, all agree that the teeth of the populace are in a truly deplorable condition. As a well-known man said to me, speaking of the Report of the Committee on Physical Deterioration, "The teeth seem the one thing on which all agree." For our purposes this unanimous verdict is sufficient, and however interesting for scientific purposes the question may be as to whether or no teeth are deteriorating, it is enough to recognise that the teeth of the nation are so bad as to be a real danger to the commonwealth.'

**De Trey and Co. (C.).** *See* **Manufacturers, etc.**

**De Trey and Sons (E.).** *See* **Manufacturers, etc.**

**Deutsche Monatsschrift für Zahnheilkunde.** *See* **Journals.**

**Deutsche Zahnärztliche Wochenschrift.** *See* **Journals.**

**Deutsche Zahnärztliche Zeitung.** *See* **Journals.**

**Dewars' Old Patent,** taken out in 1856, by H. A. Dewar, of Aberdeen, which so completely anticipates modern dental engines, was described and fully illustrated by a reproduction of his quaint old drawings in the *B. D. J.*, XXV., p. 711. As the title of the specification is 'Transmitting Motion to Machinery,' this old patent seems to have been for long almost entirely overlooked, though the description of it clearly contemplates its application to dentistry. Even a right angle hand-piece fundamentally as now used is described and figured. As such old patents as this, with hundreds of others, doubtless have invalidated many monopolies enjoyed for contrivances patented as new and original within the last half-century, we venture to quote verbally the specific claims of the invention under this patent, which are as follows :

‘First, the general arrangement and construction of jointed spindles or shafting carried or supported or covered by jointed tubes for transmitting rotatory motion to instruments or tools, as hereinbefore described.

‘Second, the system or mode of actuating rotatory instruments or tools by means of any convenient number of spindles or lengths of shafting connected together by universal joints, and carried or sustained in or covered by tubes connected together by spherical joints, as hereinbefore described.’

**Digest, The Dental.** *See Journals.*

**Directory, Advertising.** A correspondent calls attention in the *B. D. J.* (XXV., p. 696) to the development of ‘special local lists’ in the case of a practitioner who was using the pages of a telephone directory in an unprofessional way. In the course of comments the editor of the *Journal* says :

‘The “select list” directory abuse is a very common and old grievance. The alleged use of a telephone directory advertising page is new to us. We think in most instances the offence is thoughtlessness on the part of reputable practitioners, who weakly surrender to the “enterprise” of a canvasser. The publishers or proprietors of directories when personally approached usually readily comply with the regulations now adopted by such firms as Kelly in regard to the “London Post Office Directory,” when it is pointed out that it is in their true interest to have any professional list complete if compiled at all.’

**Dogwood, Jamaica** (*Piscidia*). An alcoholic extract of the bark of the root of this tree is much used in America in cases of acute toothache, both as a local application to the cavity and as a sedative and narcotic when administered in doses of from 2 to 5 drops. Has been highly recommended for nervous, excitable patients who dread a tedious operation, given half an hour previously.

**Doherty, Eugene.** See **Manufacturers.**

**Dominion Dental Journal.** See **Journals.**

**Donat's (G.),** Patent Automatic Spring-closing Gas-bottle.

If the fitting of the valve on its setting and the strength of the spring can be depended upon to maintain a certain closure, the not infrequent imperfect sealing of a screw-valve, where a sudden expansion has caused freezing at the opening, should be thus automatically obviated. (*For illustration see Index to Advertisements.*)

**Durine.** A fancy name for a solution of formol (formaldehyde); has been recommended as a mummifying agent in root treatment.

## E.

**Eau de Botot.** A mouth-wash greatly favoured on the Continent, especially in France; is said to be a compound tincture, in 90 per cent. alcohol, of cinchona, cassia, ratany, flavoured with cloves and peppermint, and coloured with cochineal. Is pleasant and refrigerating, but of slight antiseptic value.

**Eau de Pierre.** Similar to the above, prepared with anise oil.

**Economics of our Profession.** A Paper touching upon the business or commercial aspects of practice, and dealing also with the relations between preceptors and their pupils and assistants, by *H. J. Morris, L.D.S.*, appeared in *B. D. J.* (XXV., p. 259).

**Edinburgh Dental Student, The.** See **Journals.**

**Education, Dental.** See also **Colleges, American Colleges, etc.**

During the past year the only noteworthy developments in the scheme of the dental educational curriculum have been the extended courses prescribed by the younger Universities now granting Degrees in Dentistry (*see Degrees*), which are also recognised by the General

Medical Council as primary qualifications for registration, and a Syllabus issued by the Royal College of Surgeons of England, in response to a largely-signed memorial from dental students asking for a definite synopsis of the general subjects required for the final examination. The following was accordingly issued :

### Royal College of Surgeons of England.

#### DIPLOMA IN DENTAL SURGERY.

The Examination in Anatomy, Physiology, Surgery, and Surgical Pathology, will be conducted on the following Synopses on and after November, 1905, for all candidates, irrespective of the date of registration as Dental Students.

#### SYNOPSES.

##### ANATOMY.

*The Bones.*—Classification, structure, development, and uses of bones. Identification of the bones (excluding hand and foot). Precise knowledge of the bones of the head and neck.

*Joints.*—Varieties of joints ; structures entering into a joint. Temporo-mandibular joint: Joints of the spine, clavicle, and shoulder.

*Muscles and Fasciæ.*—The naked-eye anatomy of a muscle. Modes of attachment. Relations and actions of muscles of mastication, deglutition, expression, and respiration. The fasciæ of the upper limb and of the head and neck.

*Circulatory System.*—The heart, its structure ; the arrangement of its cavities ; valves ; relations of the heart. Pericardium. The arrangement of the principal arteries and veins of the body. Position, course, relations, and distribution of the vessels of the head and neck.

*Nervous System.*—Main divisions of the brain. Naked-eye anatomy of the spinal cord, and of a spinal segment with its nerve roots. Cranial and spinal nerves. General arrangement of the sympathetic nervous system. Course, relations, and distribution of the cranial nerves. The cervical and dorsal spinal nerves. Cervical and brachial plexuses.

*Organs of Special Sense*—*The Eye.*—Structure of the eyeball ; its vascular and nerve supply ; intrinsic and extrinsic muscles. *The Eyelids.*—Lachrymal apparatus. *The Nose.*—Nasal fossæ and accessory cavities. Nasal mucous membrane ; vascular and nervous supply. *The Ear.*—An elementary knowledge of the external, middle, and internal ear.

*The Face and Neck.*—Lips, mouth, tongue, salivary glands, palate, tonsils, pharynx, œsophagus. Larynx, trachea, thyroid body,

thyro-lingual duct. Cervical lymphatic glands, with the areas drained by them. The triangles of the neck, with their boundaries and contents.

*Thoracic and Abdominal Viscera*.—Their structure, general arrangement, and relations. The thoracic duct.

#### PHYSIOLOGY.

*Histology*.—The epithelial, connective, muscular, and nervous tissues. The buccal and lingual mucous membranes and the salivary glands.

*Contractile Tissues*.—Their mode of action and relation to nerves; voluntary and involuntary muscular contraction; tetanus; rigor mortis.

*The Blood*.—Its structure, composition, and uses. Coagulation; arterial and venous blood. The chemistry and combinations of hæmoglobin. The gases of the blood.

*Circulatory System*.—Mechanics of the circulation of the blood. Blood-pressure. The pulse.

Structure and mode of action of the heart, arteries, veins, capillaries.

General plan of the systemic, pulmonary, and portal circulations. Influence of the vagus and sympathetic nerves on the actions of the heart and vessels.

*Lymphatic System*.—General arrangement of the lymphatic and lacteal systems. Structure and function of lymphatic glands and tonsil.

*Respiration*.—Mechanism of respiration. Principal muscles concerned in tranquil and in forced respiration. Control of respiration by the nervous system. Chemical changes in blood and air. Interchange of gases. Dyspnœa: Death by suffocation.

*Alimentation—Digestion*.—Composition and uses of the various secretions discharged into the mouth, stomach, and intestines. Chemistry of simple foods—*e.g.*, bread, meat, milk; their digestion, absorption, and destination. Classification of foodstuffs.

The muscular and nervous mechanism of mastication, deglutition, peristalsis, defæcation, vomiting.

*Nutrition*.—General plan and action of a secreting gland, with its nerves and vessels. Secretion and excretion. The liver as a secretory and excretory organ. Glycogen. Metabolism in general.

*The Urine*.—Its composition; variations in amount and specific gravity. Sources and meaning of its components.

*The Skin and its Appendages*.—Structure and functions.

*Animal Heat*.—Maintenance and regulation of animal heat. The normal temperature. Cold-blooded and warm-blooded animals.

*Nervous System*.—General plan of cerebro-spinal and sympathetic systems. White and gray nerve matter, and their general disposition in brain and cord. Nerve centres and their uses. Actions of various kinds of nerves—*e.g.*, motor, sensory, vaso-motor. Reflex action.

*Special Senses*.—Component parts of the eyeball. The eye as an



optical instrument. Variations in the pupil; how affected.  
Reception of an image by the eye. Vision.  
*Ear*.—Its general structure. Mode of conduction of sound vibrations.  
*Taste—Touch—Smell*.—The special structures for the reception of the impressions for these senses.  
*The Vocal Apparatus*.—The production of voice. Speech.  
*Development*.—An elementary knowledge of the development of the face and neck.

## SURGERY AND SURGICAL PATHOLOGY.

*Acute and Chronic Inflammation*.—Causes. Vascular and structural changes. Clinical signs and constitutional symptoms. Acute and chronic abscess. Gangrene. Boil, carbuncle.  
*Elementary knowledge* of micro-organisms in their relation to pathological processes.  
*Wounds*.—Classification. Processes of healing. Treatment. Sæpræmia. Septicæmia. Pyæmia. Erysipelas.  
*Ulceration*.—Nature of process. Chief varieties of ulcers of skin. Sinus and fistula.  
*Hæmorrhage*.—Varieties. Arrest of hæmorrhage. Hæmophilia.  
*Shock—Collapse—Syncope—Fever*.  
*New Growths*.—Meaning of terms 'innocent' and 'malignant.' General structure and classification of tumours. Diagnosis and treatment of the more common tumours.  
*Cysts*.—Varieties and classification. Diagnosis and treatment of cysts of the head and neck.  
*Syphilis*.—Modes of infection. Stages, symptoms, and treatment of acquired and congenital forms.  
*Tuberculosis*.—Modes of infection. Pathological changes in a lymphatic gland. Treatment of tuberculous disease in glands and in bone.  
*Actinomycosis*.—Modes of infection. Signs and treatment when occurring in head and neck.  
*Scurvy*.  
*Tetanus*.—Cause and symptoms.  
*Fractures*.—Causes, varieties, symptoms. Process of union. General principles of treatment. Signs and treatment of fractures of the bones of the face.  
*Bloodvessels*.—Injuries of vessels and their consequences. Causes and chief forms of aneurism. Atheroma. Calcification of arteries. Thrombosis. Embolism. Varicose veins.  
*Nerves*.—Injury to nerves. Common causes of paralysis. Neuritis. Neuralgia. Special knowledge of affections of fifth and seventh cranial nerves.  
*Diseases of Bones*.—Periostitis, osteitis, osteomyelitis, caries, necrosis, tumours of bone. Symptoms and treatment of diseases of the bones of the face.  
*Rickets*.—Causes and signs of rickets. Changes in bone.  
*Joints*.—General signs and treatment of dislocation, with special reference to the temporo-mandibular joint and shoulder joint. Diseases of temporo-mandibular joint.  
*Lymphatics*.—Diseases of the lymphatic glands in the neck.

*Injuries of Face and Neck.*—Wounds of head and neck. Cut-throat.

Foreign bodies in air-passages and œsophagus. Dysphagia.

Dyspnœa. Laryngotomy and tracheotomy.

*Surgical Affections of Face, Mouth, Pharynx, and Neck.*

*Mouth and Lips.*—Stomatitis: causes, varieties, symptoms, treatment. Salivary calculus. Ranula and other cysts of mouth.

Hare-lip. Epithelioma. Herpes. Syphilis. Tubercle. Nævus.

Papilloma. Cancrum oris.

*Tongue.*—Glossitis, acute and chronic. Papilloma. Epithelioma.

Ulcers of tongue. Gumma of tongue. Wound of tongue.

*Palate.*—Cleft-palate. Tumours of palate. Ulceration. Necrosis.

*Tonsils.*—Varieties of tonsillitis, diagnosis, consequences, and treatment. Chronic enlargements. Ulceration of fauces.

*Gums.*—Surgical affections; causes, diagnosis, and treatment.

*Maxillary and Frontal Sinuses.*—Surgical affections; causes, diagnosis, and treatment.

*Jaws.*—Surgical affections; causes, diagnosis, and treatment. Closure of jaws.

*Nose and Pharynx.*—Adenoid vegetations. Inflammatory affections. Ozœna. Polypi. Epistaxis. Foreign body in nose. Lupus and syphilis of nose. Rodent ulcer of nose and face.

*Parotid and Submaxillary Glands.*—Surgical affections.

*Larynx.*—Scald. Spasm of glottis. Edematous laryngitis. Diphtheritic membrane in nose, throat, or larynx.

*Neck.*—Torticollis. Causes of stiff-neck. Caries of cervical vertebrae. Cervical abscess. Bronchocele.

*Eye.*—Conjunctivitis. Iritis. Corneal ulcers and opacities. Ptosis strabismus.

*Anæsthetics:* With special reference to their use in dental surgery.

March 9, 1905.

The procedure for qualification as a dental surgeon includes:

- (a) The preliminary examination in general education.
- (b) Professional education (extending over four years subsequent to registration).
- (c) Examination.

### (a) The Preliminary Examination.

The General Medical Council require that the student shall have passed an examination on the following subjects:

- '(a) English (Grammar; Paraphrasing; Composition; questions on English History and Geography).
- '(b) Latin (Grammar; Translation into English from unprescribed Latin books; Translation into Latin of a continuous English passage, and of short idiomatic English sentences).<sup>1</sup>

<sup>1</sup> In the case of natives of India or other Oriental countries whose vernacular is other than English, an examination in a classical Oriental language may be accepted as equivalent to an examination in Latin.

- '(c) Mathematics (Arithmetic; Algebra, including easy quadratic equations; Geometry, including the subject-matter of Euclid, Books I., II., III., and simple deductions).
- '(d) One of the following subjects:
  - '(a) Greek (Grammar; Translation into English from unprescribed Greek books; Translation into Greek of short idiomatic English sentences); or
  - '(β) A Modern Language (Grammar; Translation into English from unprescribed books; Translation of a continuous English passage, and of short idiomatic English sentences).'

The following is a list of bodies in the United Kingdom whose examinations are recognised as qualifying for registration:

# I. UNIVERSITY EXAMINATIONS HELD IN THE UNITED KINGDOM.

## A.

Final Examination for a Degree in Arts or Science of any University in the United Kingdom.

## B.

### UNIVERSITY OF OXFORD:

Junior Local Examinations.

\*Senior Local Examinations.

Responsions. (Certificate to be supplemented by others showing that the required mathematical subjects have been passed.)

\*Moderations.

### UNIVERSITY OF CAMBRIDGE:

Junior Local Examinations.

\*Senior Local Examinations.

\*Higher Local Examinations.

\*Previous Examination.

\*General Examination.

### OXFORD AND CAMBRIDGE SCHOOLS' EXAMINATION BOARD:

Lower Certificate Examinations.

\*Higher Certificate Examinations.

### UNIVERSITY OF DURHAM:

Examination for Certificate of Proficiency.

Senior Local Examinations.

### UNIVERSITY OF LONDON:

Matriculation Examination.

### VICTORIA UNIVERSITY OF MANCHESTER, UNIVERSITY OF LIVERPOOL, AND UNIVERSITY OF LEEDS:

Preliminary Examination.

### UNIVERSITY OF BIRMINGHAM:

Matriculation Examination.

### UNIVERSITY OF WALES:

Matriculation Examination.

### UNIVERSITIES OF SCOTLAND:

\*\*Preliminary Examination of the Joint Board of Examiners of

the Scottish Universities for Graduation in Medicine and Surgery.

Preliminary Examination of the Joint Board of Examiners of the Scottish Universities for Graduation in Arts or Science.

UNIVERSITY OF ST. ANDREWS :

Final Examination for the Diploma of L.L.A.

UNIVERSITY OF DUBLIN :

Principal Public Entrance Examinations.

Examinations for the First, Second, Third, or Fourth Year in Arts. (Certificate to be signed in the approved form by the Medical Registrar of the University.)

ROYAL UNIVERSITY OF IRELAND :

Matriculation Examination.

## II. GOVERNMENT EXAMINATIONS HELD IN THE UNITED KINGDOM.

SCOTTISH EDUCATION DEPARTMENT :

\*\*Leaving Certificate Examinations: passes in Lower Grade.

\*Leaving Certificate Examinations: passes in Higher Grade or Honours.

INTERMEDIATE EDUCATION BOARD OF IRELAND :

Middle Grade Examination.

\*Senior Grade Examination.

CENTRAL WELSH BOARD :

\*Senior Certificate Examinations.

## III. EXAMINATIONS BY CHARTERED BODIES HELD IN THE UNITED KINGDOM.

COLLEGE OF PRECEPTORS :

\*\*Examinations for First-class Certificate.

Preliminary Examination for Medical Students.

EDUCATIONAL INSTITUTE OF SCOTLAND :

Preliminary Medical Examination.

ROYAL COLLEGES OF PHYSICIANS AND SURGEONS IN IRELAND :

Preliminary Examination.

Those examinations marked \* may be taken at more than one time; those marked \*\* may be taken at one, or not more than two examinations.

In all other cases the Medical Council require the whole of the subjects to be passed at the same time.

## IV. EXAMINATIONS HELD OUT OF THE UNITED KINGDOM.

UNIVERSITY OF MALTA :

Matriculation Examination.

UNIVERSITY OF CALCUTTA :

First Examination in Arts.

UNIVERSITY OF MADRAS :

First Examination in Arts.

UNIVERSITY OF BOMBAY :

Matriculation Examination.

## PANJAB UNIVERSITY :

Intermediate Examination in Arts.

## UNIVERSITY OF ALLAHABAD :

Intermediate Examination in Arts.

## CEYLON MEDICAL COLLEGE :

Preliminary Examination.

## UNIVERSITY OF M'GILL COLLEGE, MONTREAL :

Matriculation Examination.

## COLLEGE OF PHYSICIANS AND SURGEONS OF THE PROVINCE OF QUEBEC :

Matriculation Examination.

## UNIVERSITIES AND COLLEGES OF THE PROVINCES OF ONTARIO :

Departmental Arts Matriculation Examination (conducted under the direction of the Provincial Education Department).

## UNIVERSITY OF MANITOBA :

Matriculation Examination.

## UNIVERSITY OF NEW BRUNSWICK, FREDERICTON :

Matriculation Examination.

## COLLEGE OF PHYSICIANS AND SURGEONS OF NEW BRUNSWICK :

Matriculation Examination.

## DALHOUSIE COLLEGE AND UNIVERSITY, HALIFAX, NOVA SCOTIA :

Matriculation Examination.

## PROVINCIAL MEDICAL BOARD OF NOVA SCOTIA :

Preliminary Examination.

## NEWFOUNDLAND MEDICAL BOARD :

Preliminary or Matriculation Examination.

## UNIVERSITY OF MELBOURNE :

Matriculation Examination.

## UNIVERSITY OF SYDNEY :

Matriculation Examination.

First Year Examination in Arts.

Senior Public Examination.

## UNIVERSITY OF ADELAIDE :

Senior Public Examination.

## UNIVERSITY OF TASMANIA :

Senior Public Examination.

## UNIVERSITY OF THE CAPE OF GOOD HOPE :

Matriculation Examination.

## UNIVERSITY OF OTAGO :

Preliminary Medical Examination.

## UNIVERSITY OF NEW ZEALAND :

Preliminary Examination for Medical Students.

## CODRINGTON COLLEGE, BARBADOS :

Examinations qualifying for a Degree in Arts at the University of Durham.

## FOREIGN UNIVERSITIES IN EUROPE :

The German Abiturienten-Examen of the Gymnasia and

Real-gymnasia ; Examinations entitling to the French Diplomas of Bachelier ès Lettres and Bachelier ès Sciences, and other corresponding Entrance Examinations to the Universities in Europe.

EGYPTIAN GOVERNMENT :

Examination for the Secondary Education Certificate.

Also a Degree in Arts of any University of the United Kingdom, or of the Colonies, or of such other Universities as may be specially recognised from time to time by the Medical Council, shall be considered a sufficient Testimonial of Proficiency.

No Certificate from the Indian and Colonial Bodies is accepted unless it shows that the examination has been conducted by or under the authority of the body granting it, includes all the subjects required by the General Medical Council, and states that all the subjects of examination have been passed at one time ; and copies of the form of the required certificate are supplied by the Registrar of the Council.

No one may be registered as a medical or dental student who has not attained the age of sixteen, and every applicant will be required to produce satisfactory evidence of age. The commencement of professional study is not reckoned as dating earlier than fifteen days before the date of registration.

The matriculation of the London University, held in January and June, is for many reasons the best. It opens the doors to all professions ; and at any time the student can forsake dentistry for another branch of the healing art, without passing another preliminary examination.

**(b) Professional Education.**

This consists of instruction in general surgery and medicine, as well as in dentistry, mechanical and surgical.

The training in mechanical dentistry should commence by an apprenticeship to a registered dentist, or can now be obtained at some of the dental schools. The examining bodies require this to extend over three years. It is impossible to overrate its importance, and three years is not too long to spend in a laboratory to master the mechanical art, without a thorough familiarity with which it is impossible to be a good dentist. Immediately this is



commenced, the youth should register as a student at the offices of the General Medical Council.

The student is advised to take this part of the curriculum in a town where institutions exist recognised for teaching chemistry and physics, which subjects may be learned before he enters at a hospital. When this is inconvenient they can be taken at a general hospital.

He may pass his first professional examination in chemistry and physics (which is Part I. of the first examination for the double qualification) as soon as possible.

INSTITUTIONS RECOGNISED FOR INSTRUCTION IN CHEMISTRY, INCLUDING  
CHEMICAL PHYSICS AND PRACTICAL CHEMISTRY.

The MEDICAL SCHOOLS recognised by the Examining Board in  
England :

- ABERYSTWYTH.—University College of Wales.
- BANBURY.—Municipal Technical School.
- BANGOR.—University College of North Wales.
- BATH.—Kingswood School.
- BEDFORD.—The Grammar School ; Modern School.
- BERKHAMSTED.—Berkhamsted School.
- BIRKENHEAD.—Holt Schools of Science and Art.
- BLACKBURN.—Stonyhurst College ; Municipal Technical School.
- BLAENAU FESTINOG.—County School.
- BOLTON.—Central Higher Grade Board School.
- BRADFORD.—The Grammar School ; Bradford Technical College.
- BRIGHTON.—Municipal School of Science and Technology.
- BRISTOL.—University College ; Merchant Venturers' Technical College ; Bristol Grammar School.
- BURY.—Bury Grammar School.
- CARDIFF.—University College of South Wales.
- CHELTENHAM.—Cheltenham College.
- CLIFTON, BRISTOL.—Clifton College.
- DERBY.—Municipal Technical College.
- DEVONPORT.—Municipal Science, Art, and Technical Schools.
- DULWICH.—Dulwich College.
- EPSOM.—Epsom College.
- ETON.—Eton College.
- EXETER.—Royal Albert Memorial College.
- FELSTED.—Felsted School.
- GLOUCESTER.—Municipal Schools of Science, Art, and Technology.
- GODALMING.—Charterhouse School.
- HALIFAX.—Municipal Technical School.
- HANLEY.—Higher Grade Board School.
- HARROW.—Harrow School.

HUDDERSFIELD.—Technical School.

HULL.—Municipal Technical School; Hymer's College.

LEICESTER.—Wyggeston School; Municipal Technical and Art School.

LIVERPOOL.—School of Science, Technology, and Art.

LONDON.—The Department of Science and Art, South Kensington; City of London School; St. Paul's School, West Kensington; the Pharmaceutical Society; Birkbeck Literary and Scientific Institute; South-West Polytechnic Institute, Chelsea; City of London College; Polytechnic Institute, Regent Street; Polytechnic Institute, Battersea; Northern Polytechnic Institute, Holloway; East London Technical College, People's Palace; Mercers' School, Holborn; St. Olave's Grammar School, Tooley Street; Merchant Taylors' School.

MANCHESTER.—Municipal Technical School.

MARLBOROUGH.—Marlborough College.

MIDDLESBROUGH.—Middlesbrough High School.

NEWCASTLE-UPON-TYNE.—The Durham College of Science, Rutherford College.

NORWICH.—Higher Grade Board School.

NOTTINGHAM.—University College.

OLDHAM.—Municipal Technical School.

PLYMOUTH.—The Science, Art, and Technical School.

PORTSMOUTH.—Higher Grade Board School; Grammar School  
Municipal Technical Institute.

PRESTON.—Harris Institute.

READING.—Reading College; Reading School.

ROCHDALE.—Municipal Technical School.

ROCHESTER.—Mathematical School.

SALFORD.—Royal Technical Institution.

SHERBORNE (DORSET).—Sherborne School.

SOUTHAMPTON.—Hartley Institution.

SOUTHEND.—Technical School.

STOKE-UPON-TRENT.—School of Science and Art.

STOURBRIDGE.—King Edward's School.

SWANSEA.—Technical College.

SWINDON.—Swindon and North Wilts Technical School.

TONBRIDGE.—Tonbridge School.

TOWYN.—Intermediate County School.

WALTHAMSTOW.—Forest School.

WINCHESTER.—Winchester School.

WOLVERHAMPTON.—Science School in connection with the Free Library.

WOODFORD (ESSEX).—Bancroft School.

The Students' Registration Committee of the Medical Council is empowered to give provisional approval to other Scientific Institutions of the same status which may be hereafter recognised by Licensing Bodies.

After three years' apprenticeship the student should enter a dental and general hospital, and register as a medical student, not necessarily to take a medical or surgical qualification, but in order that he may be able to do so at some future time should he wish. The

work done at the general hospital for the dental qualification is largely the same as that for the general qualification, and is allowed to count as part of the medical curriculum.

At the expiration of six months he may pass the second professional examination in Dental Mechanics and Dental Metallurgy, and after two years may pass the third or final examination in Anatomy, Physiology, Surgery, and Pathology, and in Dental Anatomy and Physiology, and Dental Surgery and Pathology.

The following is a list of Schools of Medicine, and recognised scientific institutions at which study may be commenced in the United Kingdom :

## I.

UNIVERSITY OF OXFORD.

UNIVERSITY OF CAMBRIDGE.

UNIVERSITY OF DURHAM (including the Durham College of Medicine, and the Durham College of Science, Newcastle-on-Tyne).

UNIVERSITY OF LONDON (including the following Medical Schools and Colleges): St. Bartholomew's Hospital, Charing Cross Hospital, St. George's Hospital, Guy's Hospital, King's College, London Hospital, St. Mary's Hospital, Middlesex Hospital, St. Thomas's Hospital, University College, Westminster Hospital, London (Royal Free Hospital) School of Medicine for Women; Bedford College, Royal Holloway College, Royal College of Science.

VICTORIA UNIVERSITY OF MANCHESTER.

UNIVERSITY OF WALES (including University College of Wales, Aberystwyth; University College of North Wales, Bangor; University College of South Wales and Monmouthshire, Cardiff.

UNIVERSITY OF BIRMINGHAM.

UNIVERSITY OF LIVERPOOL.

UNIVERSITY OF SHEFFIELD.

UNIVERSITY OF ABERDEEN.

UNIVERSITY OF ST. ANDREWS (including University College, Dundee).

UNIVERSITY OF EDINBURGH.

UNIVERSITY OF GLASGOW (including Queen Margaret College).<sup>1</sup>

UNIVERSITY OF DUBLIN (including Trinity College).

ROYAL UNIVERSITY OF IRELAND (including Queen's College, Belfast; Queen's College, Cork; University College, Dublin; Queen's College, Galway).

## II.

BRISTOL: University College.

SHEFFIELD: University College.

EDINBURGH: School of Medicine of the Royal Colleges, Surgeons' Hall School, Medical College for Women.

GLASGOW: Anderson's College, St. Mungro's College, Western Medical School.

DUBLIN: Catholic University Medical School, Royal College of Surgeons' Schools of Surgery.

### III.

BRADFORD: Technical College.

BRIGHTON: Technical Day College.

BRISTOL: Merchant Venturers' Technical College.

CAMBRIDGE: Girton College, Newnham College.

CHELTENHAM: Ladies' University College.

DERBY: Technical College.

DUBLIN: Royal College of Science for Ireland.

EXETER: Royal Albert Memorial College.

HALIFAX: Municipal Technical Schools (Day Classes).

HUDDERSFIELD: Huddersfield Technical College (Day Classes).

LONDON: Birkbeck Institute, East London Technical College, Central Technical College, Westfield College, Polytechnic Institute, Battersea (Day Classes).

NOTTINGHAM: University College.

PLYMOUTH: Municipal School of Science (Advanced Day Classes).

PRESTON: Harris Institute.

READING: Reading College.

SOUTHAMPTON: Hartley College.

SWANSEA: The Swansea Technical College (Day Classes).

CAPE TOWN: South African College.

UNIVERSITY OF VICTORIA (AUSTRALIA).

### (c) The Examination.

The following bodies (under the recent decision of the General Medical Council), grant diplomas, licenses, or degrees, which are qualifications entitling to registration as a Dentist.

As the regulations of the four Colleges in the United Kingdom are practically identical, we will only quote in full those of **The Royal College of Surgeons of England**, which grants a License in Dental Surgery under the following regulations, which apply to all candidates who have registered as dental students after January 1, 1897. There are three examinations: the Preliminary Science, the First Professional, and the Second Professional Examination.

1. PRELIMINARY SCIENCE.—Before this examination the candidate must produce a certificate of having received instruction (which may be taken prior to the date of registration as a dental student) at a recognised institution in Chemistry, Physics, and Practical Chemistry. The examination consists of these subjects, and is identical with Part I. of the First Examination of the Examining Board in England.

2. THE FIRST PROFESSIONAL.—The candidate must produce certificates—(1) Of having been engaged for three years in acquiring familiarity with the details of Mechanical Dentistry, under the instruction (which may be taken prior to registration as a dental student) of a competent practitioner or under the direction of the Superintendent of the Mechanical Department of a recognised dental hospital. In the case of qualified surgeons, evidence of a period of

not less than two, instead of three, years will be sufficient. (2) Of registration as a dental student by the General Medical Council. (3) Of having attended at a recognised dental hospital and school—(a) a course of lectures on Dental Metallurgy; (b) a course of Practical Dental Metallurgy; (c) a course of lectures on Dental Mechanics; and (d) a course of Practical Dental Mechanics, including the manufacture and adjustment of six dentures and six crowns. Candidates may present themselves for the First Professional Examination after the completion of six months' attendance at a recognised dental hospital and school. The examination consists of Mechanical Dentistry and Dental Metallurgy; the examination in Dental Metallurgy will be by written paper.

3. THE SECOND PROFESSIONAL.—The candidate must produce certificates—(1) Of having been engaged during four years in the acquirement of professional knowledge subsequently to registration as a dental student. (2) Of having attended at a recognised dental hospital and school—(a) a course of Dental Anatomy and Physiology; (b) a separate course of Dental Histology, including the preparation of microscopical sections; (c) a course of Dental Surgery; (d) a separate course of Practical Dental Surgery; (e) a course of not less than five lectures on the Surgery of the Mouth, which lectures may be given at a dental hospital or at a recognised medical school—in the latter case they may form part of the course of lectures on Surgery; (f) a course of Dental Bacteriology; and (g) a course of Dental Materia Medica. These certificates are only required of students who enter at a recognised dental hospital on or after May 1, 1902. (3) Of having attended at a recognised dental hospital or in the dental department of a recognised general hospital the practice of Dental Surgery during two years. (4) Of having attended at a recognised medical school—(a) a course of lectures on Anatomy; (b) a course of lectures on Physiology; (c) a separate Practical Course of Physiology; (d) a course of lectures on Surgery; and (e) a course of lectures on Medicine. (5) Of having performed Dissections at a recognised medical school during twelve months. (6) Of having attended at a recognised hospital and practice of Surgery and Clinical Lectures on Surgery during two winter sessions. (7) Of being twenty-one years of age.

The certificates will be required to show that students have attended the courses to the satisfaction of their teachers. Candidates may present themselves for the Second Professional Examination after four years' professional study from the date of registration as a dental student, and six months after passing the First Professional Examination. The Second Professional Examination consists of: Part I., General Anatomy and Physiology, General Surgery and Pathology; Part II., Dental Anatomy and Physiology, Dental Pathology and Surgery, and Practical Dental Surgery. The written examination comprises General Anatomy and Physiology, General Pathology and Surgery, Dental Anatomy and Physiology, and Dental Pathology and Surgery. The Practical Examination is—(a) on the treatment of Dental Caries, and candidates may be required to prepare and fill cavities, or do other operations in Dental Surgery (and must provide their own instruments); (b) on the Mechanical



and Surgical Treatment of Irregularities of Children's Teeth. There is also an oral Examination.

With regard to the examinations of this body, it should be noted that recently a report from the Board of Examiners in Dental Surgery dealt with the circumstance that a large number of students pass in the dental part only of the examination, having either failed in or not having presented themselves for the general part of the examination. With the object of obviating this, the following resolutions were adopted by the Council:

1. That a candidate who elects to take the examination in two parts must present himself for, and pass in, the general section first.
2. That a candidate who presents himself for the whole of the examination at the same time may pass in the general section though he may fail in the dental section.
3. That a candidate who presents himself for the whole examination shall complete his examination in the general section before his dental paper is read by the Examiners and before being admitted to the Dental Practical and Oral Examination, and in the event of his failure in the general section, he shall not be allowed to proceed with the dental section.
4. That in the event of the compulsory withdrawal of a candidate from the dental part of the examination, the fee paid for admission to that part will not be forfeited by him, but will be held over until such time as he becomes eligible and presents himself to be examined by the dental section of the Board.

In order to give effect to these alterations the necessary changes were made in the regulations. The altered conditions are to take effect from November 1, 1904.

The President reported that, in accordance with the unanimous recommendation of the Board of Examiners in Dental Surgery, he had authorized the Board to hold, in February, 1904, an additional Examination in General Anatomy and Physiology, and General Pathology and Surgery (Part I. of the Second Professional Examination for the License).

Exemption from the Preliminary Science Examination is granted to those who have passed an examination in Medicine at a University in the United Kingdom, India, or a British colony. Exemption from Anatomy and Physiology is granted to those who have passed the second Examinations of the Examining Boards in England, or the corresponding Examination of the Royal College of Surgeons of Edinburgh, the Royal College of Surgeons in Ireland, or the Faculty of Physicians and Surgeons of Glasgow, or of any University in the United Kingdom. Exemption from General Surgery and Pathology is granted to those who have passed the Examination in Surgery of the Examining Board in England or the corresponding Examination of the Colleges and Universities above mentioned. The fee for the diploma is £21, and is payable as follows: Preliminary Science Examination, £3 3s.; First Professional Examination, £2 2s.; Second Professional Examination, £5 5s., the balance to be paid on completion of the Examinations. The Preliminary Science Examination is held in January, March or April, July, and October. The first and second Professional Examinations are in May and November. Candidates must give twenty-one clear days' notice of



intention to present themselves. Applications with reference to the Examination should be addressed Mr. F. G. Hallett, The Examination Hall, Victoria Embankment, London, W.C.

**Royal College of Surgeons, Edinburgh.**—FIRST PROFESSIONAL EXAMINATION.—The candidate must have attended *the courses on Anatomy, Chemistry, and Physiology*. (This applies only to those commencing before October 31, 1898.) *The examination embraces Anatomy, Chemistry, and Physiology*. The fee is £4 4s. for those commencing study before October 1, 1896, and £5 5s. after that date.

SECOND EXAMINATION.—The candidates must have attended the remaining courses of the curriculum, must be twenty-one years of age, and pay the fee of £6 6s. if commencing study before October 1, 1896, or £10 10s. if after that date. The examination embraces Surgery, Medicine, Therapeutics, and the special subjects of Dental Anatomy and Physiology, Dental Surgery and Pathology, and Dental Mechanics. Unsuccessful candidates will be repaid £2 2s. in the First and £3 3s. in the Second Examinations. Those claiming exemption from the first Dental Examination on the ground of having passed the First and Second Triple Qualification Examinations will, before the Second Dental Examination, pay the total fee of £10 10s. for the Dental Diploma, of which £3 3s. will be returned in case of rejection. The fee payable by candidates who begin study after October 1, 1896, will be £15 15s.

Full particulars can be obtained of the Clerk to the College, 54, George Square, Edinburgh.

**Faculty of Physicians and Surgeons of Glasgow.**—The regulations as to certificates, curriculum, number, and subjects of examinations, fees, etc., are in effect similar to those of the Royal College of Surgeons of Edinburgh, though there are several points of difference. The first examination may be taken in two divisions, the first comprising Physics and Chemistry, and the second Anatomy and Physiology. Special provision is made for candidates who intend to qualify both in Medicine and in Dentistry. All communications should be addressed to the Secretary to the College, Faculty Hall, 242, St. Vincent Street, Glasgow.

**Royal College of Surgeons in Ireland.**—Information concerning the License may be obtained from the Registrar of the College, who will receive the applications of candidates.

The Primary Dental Examinations commence on the second Monday in February, May, and November. The Final Dental Examinations commence on the Thursdays immediately following the Primary.

*Exemptions.*—Candidates educated in England or Scotland are admitted to the Primary Dental Examination, and subsequently to the Final Dental Examination, on the production of the certificates that would be necessary for both Primary and Final Examinations in those countries.

*Fees.*—Primary Dental Examination, £10 10s.; Re-examination, if rejected, £5 5s.

*Fees.*—Final Dental Examination: Candidates holding L.R.C.S.I., or students who have passed Primary Dental or Third Professional Examination of the College, £10 10s.; Re-examination, £5 5s.

Fees for Final Examination of all other candidates, £26 5s. ; Re-examination, £10 10s.

Extra fee for Special Examination, £5 5s.

Fees are not returned to candidates who fail to present themselves without having given seven days' previous notice to the Registrar, or who may have been rejected.

*Special Examinations.*—Candidates seeking a Special or Supplemental Examination must make an application to the Council of the Royal College of Surgeons (showing special cause), and, if admitted thereto, must pay £5 5s. in addition to the fees of the examination which they seek.

The subjects for and the mode of carrying out a Special Examination are the same as those above laid down.

*Examination for the License in Dental Surgery sine Curriculo.*—The Council has power to admit to examination, *sine curriculo*, candidates whose names are on the Dental Register, and who are unable to furnish the certificates required by the foregoing regulations, on presentation of the schedule of application as hereinafter set forth, accompanied by any certificate they may have of general or professional education, and by the required fee.

Application for such examination shall be made on a form, obtainable at the College, setting forth a certificate, signed by two Fellows, Members, or Licentiates of a College of Surgeons, and by two Licentiates in Dental Surgery in the Royal College of Surgeons in Ireland (or two members of the British Dental Association, or of the Odontological Society), to the effect that applicant is of good moral character, has been for five years engaged in the practice of Dentistry, is a registered Dentist, and has not during the past two years attracted business as a Dentist by advertising or other unbecoming practices. The applicant must also submit a declaration made by him before a magistrate to the effect that the applicant has not during the two years preceding the date of such declaration attracted business as a Dentist by advertising or other unbecoming practices. The application must also contain a statement by the applicant subscribing to the terms of the declaration hereinafter laid down for all candidates before receiving the diploma.

The examination and fees for candidates *sine curriculo* are the same as for Final Dental Examinations of other candidates.

**DECLARATION.**—Candidates before receiving the diploma are required to make the following declaration :

*I, ..... of ....., hereby declare that I am twenty-one years of age and upwards, that if I shall be granted the Diploma in Dental Surgery of the Royal College of Surgeons in Ireland, and so long as I hold the same, I will not seek to attract business by advertising or by any other practice considered by the College to be unbecoming; and I agree that such Diploma shall be cancelled on its being proven to the satisfaction of the President and Council that I have done so.*

And since our edition of last year, the Diploma of L.D.S. is being conferred by the following bodies :

**The Victoria University of Manchester.**—Courses of study extending over four years are required for the diploma of L.D.S. The preliminary examination is such as may be accepted from time to time by the General Medical Council for registration as a Dental Student. Apprenticeship may be taken with a registered dentist or in the laboratory of an approved dental hospital. The following are the classes arranged for the four required courses for the diploma.

#### FIRST YEAR.

*Winter and Summer.*—(1) Chemistry Lectures; (2) Chemistry (Practical); (3) Physics and Elementary Mechanics; (4) Laboratory work in Dental Mechanics.

The 'First Examination' in Chemistry and Physics should now be taken.

#### SECOND YEAR.

*Winter.*—(1) Dental Mechanics; (2) Dental Metallurgy; (3) Laboratory work in Dental Mechanics.

*Summer.*—(1) Laboratory work in Dental Mechanics; (2) Anatomy (Lectures and Practical).

The 'Second Examination' in Dental Mechanics and Dental Metallurgy should now be taken.

#### THIRD YEAR.

*Winter.*—(1) Dental Anatomy and Physiology; (2) Anatomy, Practical; (3) Physiology Lectures; (4) Laboratory work in Dental Mechanics; (5) Dental Hospital Practice; (6) Clinical Surgery.

*Summer.*—(1) Dental Histology; (2) Anatomy, Lectures and Practical; (3) Practical Histology; (4) General Pathology (three months), Practical Pathology; (5) Laboratory work in Dental Mechanics; (6) Dental Hospital Practice.

The 'Third Examination' in Anatomy, Physiology, and Dental Anatomy and Dental Histology should now be taken.

#### FOURTH YEAR.

*Winter.*—(1) Surgery Lectures (including elements of Surgical Pathology); (2) Clinical Surgery; (3) Dental Hospital Practice.

*Summer.*—(1) Dental Pathology and Surgery; (2) Operative Dentistry; (3) Dental Hospital Practice.

The 'Final Examination' in the subjects of Surgery, Operative Dentistry, Dental Surgery, and Dental Prosthetics should now be taken.

The Fees for the Courses for the Degees and Diploma will be found in the Prospectus of the University and Hospital.

**University of Liverpool.**—This University, whose School of Dentistry is now affiliated with the Liverpool Dental Hospital, confers a Diploma in Dentistry (L.D.S.) in addition to the Degrees of B.D.S. and M.D.S. The fees for the L.D.S. course are: for Chemistry and Physics £11 11s., and for all the Lectures, £50 in two instalments.

**Victoria (Australia).**—The Dental Board of this Colony, in conjunction with the University of Victoria, and the Australian College of Dentistry, now grants a Dental Diploma (L.D.S.), which

has been lately acknowledged by the General Medical Council as qualifying for registration so long as the Council is satisfied that the standard of curriculum and examinations are kept up to the requirements of dental education in this country. It is understood that at present the Council are assured that the regulations as to preliminary examination and instruction by lectures and hospital curriculum followed by professional examinations are practically the same as those of corresponding qualifying bodies in the United Kingdom.

### UNIVERSITY DENTAL DEGREES.

#### *See also Degrees.*

**University of Birmingham.**—The Degrees of Bachelor of Dental Surgery and Master of Dental Surgery of the University of Birmingham are open to students who follow the requisite course in the University, and have previously obtained a Diploma in Dental Surgery of one of the licensing bodies.

The Dental Schools form an integral part of the Faculty of Medicine of the University of Birmingham, and with the General, Queen's, and Dental Hospitals afford the fullest opportunities for study to students preparing for the Dental Degrees of the University and the diplomas of licensing bodies.

An Entrance Scholarship of the value of £37 10s. is offered annually.

*Composition Fees.*—For the courses required for the L.D.S. of any of the Corporations, and the Degree in Dentistry of the University is £75, that for the L.D.S. in combination with the M.R.C.S. and L.R.C.P. is £85, and that for the M.B., Ch.B., and B.D.S. is £95. Each of these fees covers the cost of the courses given at the University for the qualifications indicated, but does not include incidental fees nor fees for hospital teaching. Each of these Composition Fees is payable in two instalments, one on entrance, the other at the commencement of the second year of study.

**Dublin University.**—In 1904 the Dublin University instituted Dental Degrees, and in June the first recipient of the honour, Dr. A. W. W. Baker was duly invested with the title of M.Dent.Sc. We have not particulars of the regulations respecting these honours, further than in the Report of the General Medical Council, but understand they are to be confined to Licentiates in Dentistry.

**The Victoria University of Manchester.**—For the Degree of Bachelor of Dental Surgery a five years' course, following the Matriculation Examination of the University, is obligatory.

The courses of practical work in Dental Mechanics must be taken at the Dental Hospital (except that up to the year 1910 the two first of the required three years *may* be taken in the laboratory of a registered Dentist).

During the first year Lectures in Physics and Zoology are taken concurrently with the practical Dental Mechanics. The examination in Physics and Zoology, two of the subjects of the first Examination, is taken at the end of the first year.

In the second year Chemistry, Practical Dental Mechanics, and Anatomy Lectures (summer) fill up the student's time, and he should then pass in Chemistry and so complete the 'First Examination.'

In the third year the following are the courses of study:

*Winter*.—(1) Physiology; (2) Anatomy (Practical); (3) Dental Mechanics; (4) Dental Metallurgy (Lectures and Practical); (5) Laboratory work at the Dental Hospital; (6) Dental Hospital Practice.

*Summer*.—(1) Anatomy Lectures; (2) Dental Anatomy Lectures; (3) Physiology (Practical), Histology; (4) Dental Hospital Practice; (5) Laboratory work at the Dental Hospital.

The 'Second Examination,' viz., in Dental Mechanics and Dental Metallurgy, is taken at the end of the third winter.

#### FOURTH YEAR.

*Winter*.—(1) Anatomy (Practical); (2) Dental Hospital Practice.

*Summer*.—(1) General Pathology; (2) Practical Pathology; (3) Dental Materia Medica; (4) Dental Histology (Practical); (5) Dental Hospital Practice.

The 'Third Examination,' in the Subjects of Anatomy, Physiology, and Histology, Dental Anatomy (Human and Comparative) and Dental Histology, is taken at the end of the fourth year.

*Winter*.—(1) Surgery Lectures; (2) Dental Surgery and Pathology; (3) Dental Hospital Practice; (4) General Hospital Practice.

*Summer*.—(1) Dental Prosthetics; (2) Orthodontia; (3) Operative Dentistry; (4) Dental Hospital Practice; (5) General Hospital Practice.

The final examination is now taken in the Subjects of Surgery and Pathology, and Dental Materia Medica; Dental Prosthetics and Orthodontia, Operative Dentistry.

The Degree of Master in Dental Surgery may be obtained not less than one year after attaining the Degree of Bachelor in Dental Surgery either (*a*) on presentation of a dissertation in some subjects connected with Dentistry or (*b*) on examination.

The examination will be on certain Dental Subjects, or groups of Dental Subjects, to be determined subsequently by the faculty.

**University of Liverpool.**—This University, like that of Manchester, now also grants Dental Degrees in addition to a Diploma of L.D.S. The fee for the course for the M.D.S., including all lectures, is £67 ros., payable in two instalments.

#### Additional Qualifications.

Qualifications in medicine and surgery or degrees in science are of value to the Dental Surgeon. The curricula demanded are broader than for the Dental Diploma alone, and cannot fail to be of use in treating pathological conditions met with in the mouth.

The alterations made by the College of Surgeons of England have virtually made the curriculum for the First and Second Professional Examination for the conjoint examination identical with that for the Dental Diploma, and by allowing the mechanical work, practical



pharmacy, chemistry, and elementary biology to be taken before registration, gives the dental student greater opportunity for taking, in addition to the L.D.S., the Conjoint Diploma. As the dental students have to take the same subjects as the general students, the First and Second Professional Examination for the Conjoint Diploma should be passed. The subjects for the Final Examination for the M.R.C.S. and L.R.C.P. can then be taken at leisure, and the examinations passed from time to time, even after the commencement of dental practice.

Those who have passed the First and Second Examination for the Conjoint Diploma will not be examined in Anatomy and Physiology for the L.D.S.

During the mechanical apprenticeship, the student can receive instruction in Chemistry, including Chemical Physics, Practical Chemistry, Practical Pharmacy, and Elementary Biology, and after the Preliminary Examination should register as both a dental and a medical student, and present himself for examination in these subjects before entering simultaneously at a General and Dental Hospital. At the end of six months he can pass his First Professional Examination for the L.D.S., and after a second winter can take the examination in Anatomy and Physiology.

At the expiration of two years he may present himself for the Final Examination for the Dental License. The remaining time should be devoted to Surgery, Medicine, and Midwifery.

Those who have the time to spare, however, may complete the medical qualification, and subsequently take the Dental Diploma. Larger knowledge of surgery and medicine is thus brought to bear upon the special surgery of the mouth, but whether the postponement of the acquisition of practical skill is advantageous or not is a question that must be carefully considered in each individual case.

*See also* **Degrees in Dentistry, and Examinations.**

One of the main topics of discussion during recent years has been the position and recognition of the practical or technical side of dental education, and the provision of suitable facilities for instruction with a uniform standard; or the recognition of a *bonâ-fide* and supervised apprenticeship which can be tested for efficiency and as to the prospects of a student in taking advantage of advanced general studies.

This question was brought to a head in the serious attempt made in 1904 by the Education Committee of the North Midland Branch of the B. D. A., in seeking the opinion of the profession in a thorough and systematic way. The whole matter was brought under the notice of



each Branch of the Association, with a request that it should be freely and fully discussed, with a view of drafting a scheme for recommendation to the teaching and examining bodies which might be universally approved.

The practical result of the discussion of this matter has been to encourage the North Midland Branch to draw up, with the assistance of their Education Committee, upon the basis of their collective investigations a 'model syllabus' for pupils in mechanical dentistry as suggestions towards approximate uniformity for the guidance of private practitioners or hospital authorities undertaking the responsibilities of instructing apprentices. Upon the understanding that the matter in its present form has not yet received the formal approval of the Representative Board of the Association, we are permitted to reproduce the proposed 'model syllabus' as follows :

### **Syllabus for Pupils in Mechanical Dentistry.**

#### **THE LABORATORY.**

Students should be perfectly familiar with the complete equipment of a modern dental workshop, and should be able to make for themselves most of the simpler forms of instruments that may from time to time be required.

#### **IMPRESSION TRAYS.**

Altering shapes of impression trays to suit special cases. Various methods of making special trays, as by casting, striking up, etc.

#### **IMPRESSION MATERIAL.**

Composition.  
Plaster of Paris.  
Gutta-percha.  
Beeswax.

Their advantages, disadvantages, and methods of manipulation.

#### **IMPRESSIONS.**

Preparation of tray if for plaster impression.  
Arranging various materials in impression tray.  
Treatment of composition, beeswax, or gutta-percha before inserting in the mouth.  
Treatment of impressions previous to casting—*e.g.*, supports for

plaster teeth, soaping of plaster impressions, wiping out excess of moisture in gutta-percha, beeswax, or composition impressions.

Colouring substances to facilitate separation of plaster impressions from models.

NOTE.—Students should be encouraged to take impressions of plaster casts, as a whole or in section, as a preliminary to taking impressions of the mouth. They should then proceed to take impressions of their own mouths; and should have frequent practice in arranging the various modelling substances neatly in the impression tray, so as to meet the requirements of high and low palates, irregularities of teeth, etc.

#### CASTING IMPRESSIONS.

Different methods of mixing plaster, so as to avoid air-bubbles.

Substances used to hasten or retard the setting of plaster.

Use of Spence metal.

*Casting Impressions for :*

(a) Vulcanite work.

(b) Plate work.

(c) So as to be suitable for articulators (various)—slabs of plaster, fusible metal or composition, etc.

*Models :*

Methods of separating various impression materials from models.

Methods of carving up models for various requirements in vulcanite and plate work.

Treatment of models for plate work, as drying, steaming, varnishing, etc.

Method of duplicating plaster models.

#### STUDY OF NATURAL TEETH.

The names of the several teeth, as incisor, canine, etc.

How to distinguish upper from lower teeth, rights from lefts, etc.

Relative lengths of teeth in a natural set.

#### MINERAL TEETH.

Points to be observed in selecting shapes, sizes, colours, and other characteristics.

When and when not to put irregularities.

Classification of irregularities for workshop purposes when mounting cases.

The relation of the teeth to each other in the mouth for occlusal and æsthetic purposes.

The various makes of mineral teeth and how to distinguish them.

Composition and manufacture of teeth.

Reasons for the general use of platinum pins for artificial teeth.

Factors governing the selection of the various kinds of teeth, as : flat, vulcanite, tube, single-gum, gum section, counter-sunk, diatoric, and continuous-gum teeth.

#### VULCANITE WORK.

*Bands and Clasps :*

Choice of band : wire or plate.

Metals of which bands may be made.

Thickness and shape or design of bands for various teeth.  
Various methods of making bands or clasps for vulcanite cases.  
Reason for using a gold-faced band.  
How to solder catches to bands.  
Devices to prevent artificial dentures from pressing unduly on the gum.  
The use of pads for making provision for the relieving of pressure on the harder portion of the palate.  
Material, shapes, and method for making pads.

*Bite or Occlusion :*

Articulation of the jaws.  
Various forms of articulators, and their advantages and disadvantages.  
Result of opening and closing the bite.  
Methods of taking a preliminary bite when impressions are obtained.  
Materials used for the preliminary bite.  
Mounting models to preliminary bite on an articulator, slab, or other device.  
Arrangement of bite-plates to meet the requirements of the case in hand.  
The use of composition, metal, wax, etc., in obtaining bites.  
Points to be observed in features of patient when taking the bite, so as to obtain a perfectly natural pose when the work is completed and inserted in the mouth, as : Length or shortness of face, fulness or want of fulness of the lips, horizontal or lip line, vertical line, and centre (line to be marked on the bite).  
Other points : Age, sex, complexion, and characteristics of patient—whether big, little, tall or short.  
The need when making a denture of being able to picture in one's mind all the features enumerated.  
Method of determining depth and height of incisal edges of teeth.  
How to correctly mount the models on a frame, or slab, etc., so as to be in the same relationship to the line of sight as the mouth itself.

Note.—Special attention of the pupil should be drawn to the result of opening or closing the bite ; also to the tendency to lower protrusion, and how to obviate it.

*Mounting Teeth :*

Manufacture of modelling and sticky wax.  
Methods of melting, cleaning, and renovating wax.  
Modelling in wax.  
Method of mounting full and partial cases.  
Reasons for mounting a full lower before a full upper.  
Grinding, fitting, and adapting of teeth to the gum and roots.  
Grinding down and polishing teeth so as to match those in the mouth.  
Waxing-up, wiping, and smoothing, and the various instruments, etc., used for the purpose.  
How to wax-up a case to vulcanize off the model.  
Swaged contour and polishing plates.

Treatment of models, and various devices adopted for securing plates in position, in case of poor suction.

NOTE.—In mounting teeth pupils should have a knowledge of the characteristics and arrangement of the natural teeth and the maxillæ.

*Flasking—Types of Flasks :*

(a) The ordinary two-part flask.

(b) The contour flask.

(c) The three-part flask.

(d) Flasks for special cases, as cleft-palate, etc.

Various methods adopted in flasking to avoid fracture of models.

Various methods of flasking a full and a part case.

How to flask a part case with and without bands.

Dipping or covering with plaster to prevent raised bites, and devices adopted to prevent fracture of investment.

Materials used to facilitate separating of parts of flasks.

Opening of flasks and scalding out the wax.

Use of boiling soda solution.

Packing the rubber.

Methods of ascertaining the necessary quantity of rubber and of avoiding excess in a given case.

Various methods of weighting lower dentures—*e.g.*, weighted rubber, metal cores, cast metal base.

Use and abuse of strengtheners.

Treatment of models to facilitate removal of plaster from vulcanized plate, with methylated collodion, silicate of soda, French chalk, etc.

*Rubbers—Dental :*

Their manufacture and composition.

The various kinds of rubber.

Their respective uses and advantages for special cases, as :

Red rubber.

Pink rubber.

Black rubber.

White rubber.

Shaded pink rubber.

Vellum rubber.

The theory of vulcanization, and points to be observed so as to obtain the most satisfactory results.

The causes of porosity, brittleness and softness.

Various forms of vulcanizers, and their advantages and disadvantages.

FILING AND POLISHING.

How to file up a denture.

The use of calipers to ascertain thickness.

How to groove the artificial gum so as to imitate Nature.

Improvement in emotional expression by leaving gum edge of the upper as high as possible in the canine region.

Various methods of polishing vulcanite.

Solarizing.

The special use in the dental laboratory of pumice, whiting, French chalk, shellac, resin, sticky wax, alum, nitre, borax, sulphur, salt, soda, oil, soap, glycerine, gum tragacanth, methylated spirit, hydrochloric, sulphuric and nitric acids, fusible metal, copper amalgam, etc.

#### SPRINGS.

How to make springs.

Metals of which springs may be made.

How to make swivels, bolts, and tubes for bolts.

Different methods of fixing bolts to plates.

Position in which bolts for springs must be fixed :

- (a) In a full set where the conditions are normal.
- (b) In a case of edge-to-edge or underhung bite.

#### PLATE WORK.

##### *Model :*

Building up rougæ or prominent points, and reasons for it.

Method of building up model with plaster, composition, or wax, to facilitate removal from sand.

Method of building up lingual side of a lower model with an inclined plane to prevent plate slipping down in process of striking up.

Breaking off of such teeth as are likely to damage the mould, arrangements having been made for refixing them accurately in position.

##### *Moulding Sand :*

Qualities suitable for moulding and casting purposes.

Its preparation for moulding.

Use of water, oil, glycerine, etc., in preparing sand.

Proper consistency of sand for moulding.

Methods of obtaining impressions in sand.

The uses of parting media, as French chalk, plumbago, pumice, etc.

The making of simple and difficult cores to simplify moulding.

Various moulding rings and boxes, and other moulding and casting devices.

##### *Casting in Metals :*

Metals at present used for dies and counter-dies.

##### (a) *Dies :*

Zinc, Babbitt's metal, type metal, fusible metal, brass, iron, gun-metal, etc.

##### (b) *Counter Dies :*

Lead, tin, zinc.

Methods of melting so as to prevent oxidation, cleaning metals with acids, etc., when in a fluid condition.

Expansion of plaster and contraction of zinc, etc., and their effects on the fit of the plate.

Various casting rings and other casting devices and their uses.

Melting-points of metals used for dies and counter-dies.

Best temperature for pouring.

Conditions to be observed in pouring metals.

Trimming metal dies when imperfect.

*Plate :*

- Sketching outline of plate on die.
- Preparation of metal pattern for plate.
- Metal of which plate has to be made, as gold, dental-alloy, aluminium, platinum, palladium, etc.
- Methods of annealing the various metals.
- Tensile strengths of various metals used.
- Special properties of different kinds of plate
- Thickness of plate for special case.
- Methods of shaping and striking up metal so as to prevent splitting, buckling, marking, etc.
- The various swagers and their uses.
- Bar lowers.
- The shape of the mouth as affecting the strength of the plate.
- Method of strengthening upper and lower gold and alloy plates.
- The use of the chasing punch.
- The special method of working aluminium.
- The use of rubber dam, paper, etc., for this metal.
- Reasons for frequent annealing and pickling.
- The special action of hydrochloric acid (HCl), nitric acid (HNO<sub>3</sub>), sulphuric acid (H<sub>2</sub>SO<sub>4</sub>), and of their combinations, and of alkalis, upon the plate metals mentioned above.
- The effects of mercury and of base metals—*e.g.*, zinc, lead, etc.—on plates, particularly gold and aluminium.
- Methods of 'easing' plates from prominent points, or when rocking on the model.
- The making of wire and clasp bands for the various teeth.
- Fitting and adjustment of clasp bands, etc., to the teeth.
- The various methods of attaching bands to plates—splicing, end-to-end fit, etc.
- The necessity of perfect joints when soldering.
- Methods of filling up a defective joint.

NOTE.—Pupils should practice striking plates in copper, German silver, etc., the making of G. S. bands and soldering same to plate with silver solder ; also the drawing out of copper and brass wire.

*Investing :*

- The use of sticky wax for attaching bands, pivots, etc., to plate previous to investing.
- Correct methods of investing in sand and plaster or other substances previous to soldering.
- When to invest and when not.
- The use of whiting in investing.
- Scalding out the wax.
- Methods of heating up previous to soldering.

*Soldering :*

- Manufacture of gold solder, silver solder, etc.
- Gold solder No. 1, 2, 3, and the special properties of each.
- Where and when to use the various grades.
- Preparation of solder for soldering.
- Fluxes for soldering, as borax, etc., and their action.
- The reason for the careful manipulation of borax, its effects upon the teeth, the fit of the backings, and the flowing of the solder.



The effects of dry borax on a heated case, or of moisture or of sudden cooling, when mineral teeth are being soldered to plate.  
Melting-points of base plate and solders.

The effects of using excess of solder due to unequal contraction and expansion of this and the plate, causing thereby misfits.

The use and management of mouth and of bellows blowpipe.

The component parts of a flame for oxidizing and reducing purposes.

The use of the broad and the pointed flame.

The use of the oxy-hydrogen blowpipe.

The making and soldering on of catches for combination work.

Pickling and filing up a plate.

NOTE.—Students should be able to recognise by changes of colour when solder or plate is on the point of melting.

#### *Mounting Teeth :*

The grinding, backing, and mounting of plate teeth or tubes.

Attachment of teeth to plate with wax.

The use of vermilion in fitting teeth to plate.

The articulation of plate teeth.

Methods of fitting and soldering the pins or posts for tube work.

The use of sulphur or cement in tube work.

The making of gold teeth for shallow bites.

#### *Investing of Plate with Teeth attached :*

The importance of using only the smallest quantity of investment, compatible with the security of the plate work, and the covering up of the necessary parts.

The correct manipulation of a plate so as to minimize the possibility of cracking the teeth during soldering—as in drying, application of borax and solder, finally heating up, soldering, and cooling.

#### *Finishing Plate :*

Pickling, filing up, and stoning.

Use of dental engine in finishing up.

Polishing with lathe.

Polishing materials used and method of application.

Boiling and cleaning.

Burnishing.

Gilding.

NOTE.—Construction and adjustments of various batteries used for electro-plating, and the methods of gilding and plating, should be familiar to the pupil.

#### COMBINATION WORK.

Gold, dental-alloy, platinum, palladium, or aluminium, in combination with vulcanite or celluloid.

NOTE.—Pupils should know the character of vulcanizer or moulding apparatus, and the temperature required for working celluloid.

Methods of attachment to gold, alloy, platinum, or palladium.

Special methods of attachment to aluminium.

## GUM SECTIONS.

- Cases suitable for gum sections.
- Grinding and fitting of gum sections.
- Full and partial gum sections.
- Prevention of fracture of sections.
- Prevention of rubber getting into the joints.

## 'CONTINUOUS GUM WORK.

- Its advantages and limitations.
- Reasons for using platinum as a base plate.
- Methods of preparing the plate and attaching the teeth.
- Constitution of gum bodies and enamels.
- The various mineral bodies in use for continuous gum work, and their special qualities.
- High and low fusing bodies.
- Methods of overcoming contraction.
- Liquids used for mixing gum bodies.
- Continuous gum work in combination with vulcanite.
- Methods of application of bodies to base-plate.
- Drying, biscuiting, and fusing, continuous gum bodies and enamels.
- Tempering continuous gum bodies.
- Construction of various furnaces used for the work, and their manipulation, as electric, gas, coke, oil, etc.
- Investing materials used.
- Tinting and colouring of teeth.
- Method of adding gum (mineral) to single teeth.

## PORCELAIN INLAYS.

- Substances used for taking impressions of cavities.
- Use of gold, platinized gold, and platinum for obtaining a matrix.
- Use of swager for obtaining a matrix from an impression.
- Materials and methods for investing a matrix.
- Mineral bodies used for inlay work.
- Composition of mineral bodies.
- Method of filling matrix with mineral body.
- Number of firings in order to obtain most satisfactory results.
- The construction and use of electric, gas, oil, and other furnaces.
- Means adopted to avoid checking, etc.
- Methods adopted for making pits (as etching, discing, etc.) in inlays for retention purposes.
- The advantages and disadvantages of high and low fusing bodies.
- NOTE.—For practical information on the composition and methods of working porcelain, pupils are recommended to consult the 'Encyclopædia Britannica' and Muspratt's 'Chemistry.'

## CROWNS.

The various kinds, such as :

- |                  |                             |
|------------------|-----------------------------|
| (a) Tube crowns. | (f) All gold, in sections.  |
| (b) Pivots.      | (g) All gold, seamless.     |
| (c) Bonwill.     | (h) Porcelain-faced.        |
| (d) Buttner.     | (i) Platinum and porcelain. |
| (e) Richmond.    | (j) Davis crown.            |

- |                                 |                 |
|---------------------------------|-----------------|
| (k) Amalgam crown.              | (o) Logan.      |
| (l) Partial amalgam crown.      | (p) Mountford.  |
| (m) Window or open-faced crown. | Newland-Pedley. |
| (n) Leon Williams.              | Robbins.        |

NOTE.—Students should be able to make any of the parts of the above crowns, such as are usually made in the workshop, as :

Post.

Making of a cap or diaphragm for a Buttner, or a Richmond, or other crown.

Making a collar, or striking up a crown, etc.

He should further be able to prepare crown dies for bicuspid and molar teeth.

To strike up gold crowns, and fit and solder them to collars.

Various methods of manipulating a gold collar from the surgery so as to prevent the shape being altered during working.

Mounting a gold collar on an articulator frame for obtaining perfect articulation with the tooth or teeth of the mouth, when the crown is finished.

#### BRIDGE WORK.

Its advantages and limitations.

Movable and fixed bridges.

Construction of the parts.

The abutments for bridges.

Striking or otherwise making the bridges.

Method of stiffening the bridge, so as to withstand force of mastication and stress.

Points for consideration in attaching parts together.

Cantilever bridges and their limitations from a mechanical point of view.

Platinum and porcelain bridges.

Repairing of bridges.

#### PALATAL DEFECTS.

*The Mechanical Treatment of Cleft-palate :*

The Kingsley, Suersen, and other obturators.

The uses of artificial vela for cleft-palate.

Method of vulcanizing and finishing artificial vela.

Fixed and hinged appliances for clefts—their advantages and disadvantages.

#### MECHANICAL TREATMENT OF FRACTURED JAWS.

Vulcanite, Hammond, and other splints.

NOTE.—Pupils should be acquainted with the various appliances to be obtained for the above purpose for use in urgent cases and where otherwise desirable.

#### REGULATING TEETH.

Mechanical devices for regulating teeth—*e.g.*, bands, screws, jacks, springs, piano-wire, wedges, vulcanite and metal plates crowns, etc.

NOTE.—Pupils should be well acquainted with all the standard

regulating appliances, and should have practice, as far as possible, in making and soldering such parts as are usually constructed in the workshop.

#### REPAIRS.

##### *Vulcanite :*

How to make and use a rubber solution.

When to use rubber solution and when to wax and flask.

##### *Methods of Preparing Vulcanite Cases for Repair :*

(a) Use of shellac, etc., in sticking parts of repair cases together.

(b) Dovetailing.

(c) Feather edge.

(d) Roughing.

Relining cases.

How to replace a broken tooth.

How to temporarily put on a tooth with fusible metal.

##### *Plate and Tube Work Repairs :*

Method of cleaning plate previous to repairing.

Repair of cracks and making up of holes caused by wear.

How to repair a vulcanite combination case when the plate is cracked.

How to put on a tooth to neatly replace a natural one where new plate has to be fitted and soldered.

Repairing of crowns.

#### GOLDSMITH'S WORK AS APPLIED TO DENTISTRY.

Alloying of gold.

Care of lemel and sweepings, and recovery of precious metals.

Melting and casting into ingots.

Annealing, pickling, etc.

Rolling out into sheets.

Manufacture of wire and use of draw-plate.

Making of solders. (See Soldering.)

Construction and use of smelting furnaces.

The Council of the Branch further point out that at the present day the old-fashioned custom of learning a subject of this kind by means of a mere apprenticeship is quite out of date ; and that every pupil should supplement verbal and practical instruction with the systematic study of a good text-book. While there are many defects in all existent text-books, the Council are of opinion that Richardson's ' Mechanical Dentistry ' is perhaps the best one for the student, as, after the apprenticeship, it will also be useful in practice.

It is also essential for students at this period to have opportunity of seeing the work in its different stages in

the mouth, and have practical acquaintance with methods of taking the bite. Towards the end of apprenticeship pupils should construct dentures entirely by themselves for charity patients. This will afford them opportunities of becoming acquainted with the results of defective fitting and suction, ill-adjusted bites, and bad results in facial expression.

It is strongly recommended that no pupil should be taken until he has passed a preliminary examination.

**Educational International Standards and Ideals.** *See International Dental Federation (Societies).*

This question, from the British point of view, was very ably dealt with in a special article on 'Problems in Dental Education,' by *N. G. Bennett*, in *B. D. J.*, XXIV., p. 144, respecting the possibilities of international uniformity, and continued on p. 737. A letter bearing upon a scheme of reform by *W. J. Law* also appears on p. 741.

**Education of the Public in the Care of their Teeth.**

A little pamphlet upon the care of the teeth is given to patients at the Royal Dental Hospital of London; and one on the care of children's teeth is among the publications of the School Dentists' Society, and can be obtained of the Hon. Secretary for distribution by private practitioners.

**Edwards and Co. (W.).** *See Manufacturers, etc.*

**Ektogan.** A fancy name for peroxide of zinc, recommended for root treatment, but gives off oxygen very slowly, and is quite insoluble in water.

**Elastic bands,** and their danger if overlooked when employed in orthodontia, was strikingly illustrated by *F. D. Lamb* (*B. D. J.*, XXIV., p. 322), who reported that in his case 'the teeth were seriously loosened, and he considered that the whole condition was due to the indiscriminate use of force. Having rectified their positions by means of Coffin springs, and retained them by means

of bands cemented to the teeth, after two or three months he was attracted by a slight exudation from the cervical margins of the centrals, drying which he noticed what proved to be an elastic band passing round the two central incisors. The band must have been so concealed for six months, yet the signs of underlying irritation were insufficient to suggest such a condition.'

**Eldred Gilbert** (S.), Dental Manufacturing Company. *See* **Manufacturers, etc.**

**Electro - Dental Manufacturing Company.** *See* **Manufacturers, etc.**

**Electro-therapeutics** have made but small progress except in the direction of sterilization of roots by the direct application of a current, which probably acts by electrolysis of fluid contents. *See* **Root Treatment.** Electric cataphoresis has been somewhat neglected in favour of pressure anæsthesia, at least in pulp treatment. With the exception of the use of high-frequency currents in cases of facial neuralgia, and some attempts at their employment in extraction, the uses of electricity have been rather more indirect as producing the Roentgen or X rays, which have been tried for affections of the gums. Metal root dryers, hot-air syringes, gold annealers, motors for engines and drills, and furnaces, are increasingly used. Both continuous and alternating currents are now made available for nearly all except electrolytic and osmotic purposes. A fairly exhaustive treatise upon the whole subject of the study and teaching of the now comprehensive field of physics termed 'electricity' is embodied in an illustrated paper by *Weston A. Price* before the Institute of Dental Pedagogics, reported in *D. Digest*, IX., p. 1305; and an excellent résumé of our present knowledge is contained in the report to the Scientific Grants Committee of the Odontological Society by *C. A. Clark*, entitled 'Electro-therapy' (*Trans. Odonto.*



*Soc.*, XXXV., p. 171). This also discusses the use of ultra-violet light in oral cases. No definite therapeutic or pathologic generalizations are formulated, but the author appears to lean to the theory that leucocytosis is stimulated directly by certain radiations, as stated by many experimenters. *See also Blue Light.*

A case of successful application of high-frequency current in facial neuralgia is reported by *W. Nicholson*, of Cardiff, in *B. D. J.*, XXV., 83.

**Elliott and Co.** *See Manufacturers, etc.*

**Elm, Slippery.** The inner bark of this American tree, having a sweetish mucilaginous fibre, is extensively used in the United States by those who have the chewing habit. This, or the similar use of certain 'chewing gums' or resins, is highly approved of by many dentists as beneficial to the teeth, directly and indirectly.

It is stated to have been remarked also in Europe that inhabitants of districts where this chewing prevails are notable for well-developed clean teeth. On the other hand, it is also said in the States that the habit produces gastric troubles, and over-stimulates the salivary glands.

**Emplastrum Adhesivum.** The well-known American rubber sticking-plaster is now official in the new U.S.P., and described as 20 parts of raw rubber with 20 of petrolatum and 960 of lead plaster.

**Employers' Liability.** Respecting statutory provision for the compensation of workmen as mechanical assistants in the case of injury by accident or negligence under the several Acts of 1875, 1880, 1897, and 1901, so far as we are aware, no case has yet been brought up for the construction of the courts in any question of dispute between a dentist and employé or assistant.

By the Employers and Workmen's Act of 1875, as construed by the Employers' Liability Act of 1880, those persons entitled to benefits are all journeymen, artificers,

handicraftsmen, and others engaged in manual labour not being domestic or menial servants.

But an important consideration is the definition of a 'workshop or factory' where such a person is engaged. This as originally defined has been much extended by the most recent legislation of the Factory and Workshop Act of 1901. Under Section 149 of that measure a factory now includes, *inter alia*, 'any premises or place . . . wherein or within the close or curtilage or precincts of which steam, water, or other mechanical power is used in aid of the manufacturing process carried on there.'

And in a schedule there is expressly provided :

'Metal and indiarubber works; that is to say, any premises in which steam, water, or other mechanical power is used for moving machinery employed in the manufacture of machinery, or in the manufacture of any article of metal not being machinery, or in the manufacture of indiarubber or gutta-percha or of articles made wholly or partially of indiarubber or gutta-percha,' or 'any premises wherein or within the close or curtilage or precincts of which any manual labour is exercised by way of trade or for purposes of gain or incidental to any of the following purposes—namely :

'(a) The making of any article or part of any article ;

'(b) The altering, repairing, ornamenting, or finishing of any article ; or

'(c) The adapting for sale of any article.'

But these clauses are subject to that 'wherein or within the close or curtilage or precincts' . . . 'steam, water, or other mechanical power is used in aid of the manufacturing process carried on there.'

It seems quite clear that the nature of work carried on in a dentist's laboratory or workshop comes within the definitions of the Acts, but the question still remains whether a workman engaged upon it would be entitled to

claim the several benefits of compensation for injuries contemplated, except as his work was associated with machinery self-moving, and actuated by such motive forces as steam, water, compressed air, or electricity. A moot point, which will have to be reserved for 'case-made law,' is whether the highly dangerous steam 'engines' known as 'Vulcanizers' or high-pressure and temperature digesters for the moulding and hardening of indiarubber, celluloid, etc., would alone be held to bring a workman under the provisions of the Acts.

It could hardly be denied or disputed that due care and diligence has to be observed by employers, foremen, etc., in securing the safety and proper working order of these appliances, as in the due guarding and fencing of the moving machinery specially contemplated in the legislation on the subject.

Possibly any case arising might be construed with reference to other legislation, such as that upon the inspection of steam boilers, or the Explosives Acts. The practical points are that employers would do well to protect themselves by such commercial insurance schemes as are open to them, taking care that the clauses defining the risks are as broad as possible; and that labour on its side should take advantage of a proper opportunity of a test which might elucidate the construction of the present law upon the subject.

**Enamel**, and its **Structure** in relation to the formation of the walls and margins of cavities, as distinguished from a study of its abstract structure and development, is treated with much wealth of illustration and practical suggestion by *F. B. Noyes* in a paper read before the Nat. Dent. Assoc., U.S.A. (*D. Digest*, IX., p. 139).

**Enamel** staining by amalgams and the conveyance of sensation by the enamel are explained by illustrated articles in *B. D. J.*, XXVI., p. 49 *et seq*, by *D. E. Caush*, who considers

this structure is more permeable than hitherto regarded. He has followed up his researches by later papers at the last annual meeting of the Association and elsewhere *B. D. J.*, XXVI., p. 901), tending to show that there are uncalcified portions of enamel which may convey sensation.

**Endarteritis obliterans** as a factor in morbid conditions of the alveolar process, and a factor in pyorrhœa alveolaris, is set forth with copious reference to the bibliography of the whole subject by *Eugene S. Talbot* in *D. Digest*, IX., p. 1177.

**Enesol.** A methyl arsenic murcuric salicylate, in white powder, soluble to 4 per cent. in water. Has been used for cauterization of small growths by local injection, but, as containing 14 per cent. of arsenic, must be used with great caution.

**Epulis**, and its **Treatment** from the Dental Surgeon's point of view, was discussed and illustrated with specially devised instruments (mostly 'sharp spoons') by *C. W. Glassington*, in a paper reported in full in *B. D. J.*, XXIV., p. 633. He strongly deprecates the use of cauteries and the ligature. Reports best results from thorough extirpation, removal of doubtful teeth, roots, and portions of alveolus with simple antiseptic treatment.

An interesting case, with successful result of thorough operation, was reported by *Mr. Tidswell* at the North Midland Branch of the B. D. A. (*B. D. J.*, XXIV., p. 320).

According to *Faneuil D. Weisse* (*D. Cos.*, XLV., p. 711), the use of acetate of zinc is justifiable and efficacious in the early stages of a small neoplasm.

**Epulis, Fibrous.** A case (illustrated) described by *S. D. Hey* in *B. D. J.*, XXVI., p. 52, was diagnosed as a polypus of the gum, but proved to be attached by a broad base to the periosteum of an incisor.

**Era, The Dental.** See **Journals**.

**Erosion.** *Dr. W. D. Miller* has some suggestive 'Notes' on this subject in *D. Cos.*, *XLVI.*, p. 177.

Severe cases, and restoration by means of porcelain, are described in *D. Cos.*, *XLV.*, pp. 438, 615.

**Erste Continentale Zahnfabrik.** See **Manufacturers, etc.**

**Erythrophleum.** Casca bark ('ordeal bark') in tincture, or the very soluble hydrochloride, has been recommended for treating sensitive dentine (*D. Cos.*, *XLVI.*, p. 114).

**Estomatologia, La Moderna.** See **Journals.**

**Ethics.** A valuable paper on 'Dental Ethics,' by *J. A. Woods*, with a good discussion, read at the North Midland Branch of the B. D. A. (*B. D. J.*, *XXV.*, p. 677), deals very fully with nearly all the principal problems of conduct in the profession.

A paper by *E. A. Bogue*, of New York, upon 'Ethics,' followed by a discussion, is reported in *D. Cos.*, *XLV.*, p. 895.

— Administration of anæsthetics.

The following resolution, passed by the General Medical Council on December 1, 1898, is quite clear: 'Any registered medical practitioner who knowingly and wilfully assists a person who is not registered as a dentist in performing any operation in dental surgery, either by administering anæsthetics or otherwise, will be liable, on proof of the facts, to be dealt with by the General Medical Council as having been guilty of infamous conduct in a professional respect.' If a dentist is unregistered a practitioner cannot give anæsthetics for him without infringing the above resolution.

The *British Medical Journal* replies as follows to a query: 'A medical practitioner who accompanies a patient to a dentist may quite justly refuse to accept responsibility for the anæsthetic unless he administers it himself. We see no way out of the deadlock caused by the insistence on either hand upon these rights, except for the patient to decide what he wishes to have done.'

Respecting the difficulty so constantly experienced by dental practitioners in securing from patients an adequate remuneration for the services of a skilled expert anæsthetist, or even the co-operation of a general medical practitioner, the following expression of opinion is very pertinent to this question, as recorded in the report of a

meeting of the Yorkshire Branch (Bradford Division) of the British Medical Association on November 2, 1904:

*Anæsthetists and Dentists.*—Dr. Mitchell then moved the following resolution: 'That in the case of registered dentists requiring a medical man to administer an anæsthetic, as far as possible preference should be given to the ordinary medical attendant of the patient to be operated on, and that the fee should be one guinea, except in the case of poor patients.' This was seconded by Dr. Goyder. The object of the mover of the resolution was to draw the attention of the dental profession to the fact that the fee usually expected by medical men for administering an anæsthetic was one guinea. Several cases had recently occurred in Bradford in which dentists had persuaded anæsthetists to accept half-guinea fees, even from well-to-do persons. One guinea was certainly little enough for the care required and the responsibility involved in giving a general anæsthetic. And where the dentist employed the services of an anæsthetist who was in general practice, he should, as far as possible, give the preference to the usual medical attendant of the person to be operated on. Drs. Hime, J. J. Bell, Horrocks, Goyder, Clow, Lancaster, and Shackleton discussed the subject. There was some difference of opinion as to the most useful procedure to adopt in connection with the matter. Some gentlemen thought that it would be better for the medical profession to come to a definite resolution on the subject, binding themselves to a distinct line of action, and then to inform the dentists of their decision. The unanimous opinion was that a guinea should be the very lowest fee accepted, except in the case of poor patients.

**Ethyl Bromide.** A constituent of 'somnoform' (see **Anæsthetics**); must be carefully distinguished from ethylène bromide.

**Ethyl Chloride** (see **Anæsthetics**) also sold as Kelene; and under other names. For local mouth and throat work it is now supplied with an addition of carbolic acid 2 per cent.; also cocaine hydrochloride (saturated) and iodoform (saturated). Is the principal ingredient of 'somnoform,' and has an almost identical effect.

For the safe and ready manipulation of sealed capsules or 'ampoules' of ethyl chloride or somnoform, the Dental Manufacturing Company have introduced two forms of capsule holder and breaker, by which the operator and the inhaler are protected from fragments of glass, and waste is prevented. In the form shown by Fig. 1 the capsule is broken by a screw; and in the other (Fig. 2,



Mr. Vernon Knowle's ball and socket pattern) the nozzle is simply deflected to a slight angle to break the stem. Near the outlet of these holders, a fine piece of metal

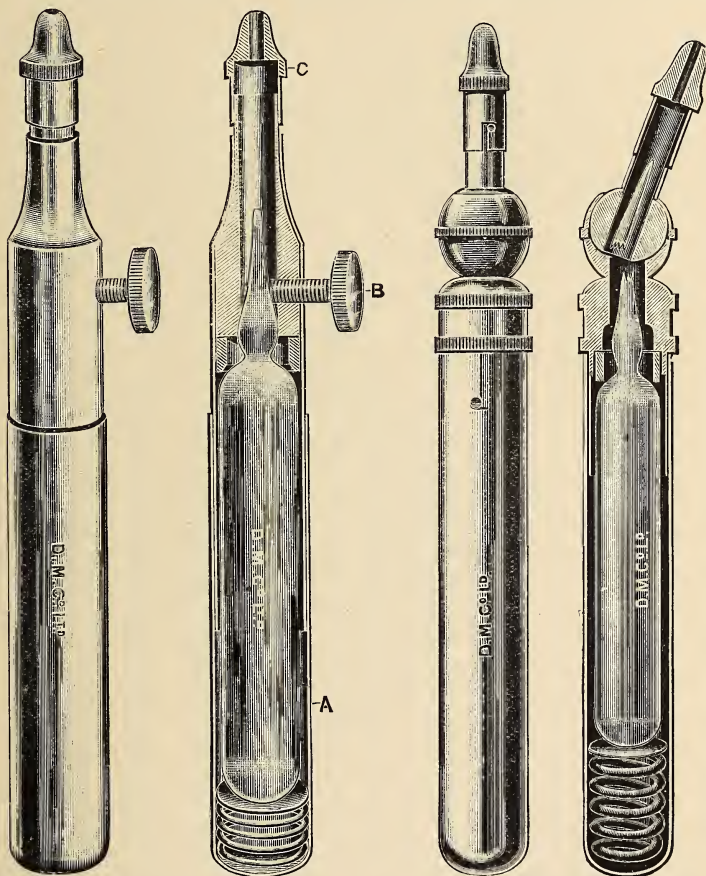


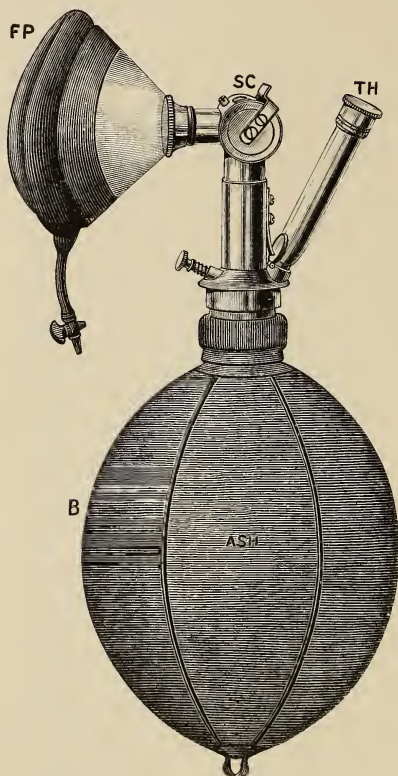
FIG. 1.

FIG. 2.

gauze prevents the escape of any fragment of broken glass.

Any make of capsule may be used, as the spiral spring,

shown in the illustration in the cover A, adapts itself to the varying sizes, and keeps the point of the capsule in the correct position for breaking.



FP, Face-piece; SC, two-way stop-cock; TH, glass tube holder;  
TB, glass tube breaker; B, indiarubber bag.

TH is not used when the ethyl chloride is sprayed into the retainer from a large graduated tube.

**Ethyl Chloride Inhaler.** A new inhaler, designed by Mr. A. McFarlane, L.D.S., was recently exhibited at a meeting of the Metropolitan Branch of the British Dental

Association. Its principal feature is the presence of a two-way stop-cock, which admits of the ethyl chloride vapour being kept in the bag until it is required for use, and further allows the administrator complete control of the volume of the drug passing into the face-piece. This two-way stop-cock also enables the administrator to inspire confidence in the patient by giving a short period of free breathing prior to the gradual induction of anæsthesia, instead of the hurried process demanded when using an inhaler not fitted with a stop-cock, owing to the extremely volatile nature of the agent employed. **TH** is a metal cylinder into which the sealed tube of ethyl chloride is placed. **TB** is a spring plunger which is pressed down with the thumb, and breaks the extremity of the sealed tube inserted on the opposite side allowing its contents to run into the retainer, which is situated directly below at the top of the bag. A disc of blotting-paper, folded and placed in the retainer, holds the ethyl chloride in suspension, which is thus more evenly distributed with each expiration. If desired, the cylinder **TH** can be removed, and the anæsthetic sprayed from a graduated glass tube into the retainer, the aperture for this purpose, as the illustration shows, being fitted with an automatically-closing lid. The inhaler is made by Messrs. Ash, Sons and Co.

A method of administration when one or two front teeth are to be extracted is reported from America. Under more or less pretence of 'freezing' the gum, it is carefully sprayed so that it is inhaled, producing rapid general anæsthesia in certain cases where a patient has an aversion to masks and inhalers. This, of course, is simply utilizing the accidental observation which led to the revival of the general use of the drug a few years ago.

The practice is of doubtful propriety, but will in some

cases undoubtedly be successful, though sometimes the nose has to be closed to effect the result.

**Eucaine (Beta)**, which may now well be called simply eucaine, as the other salt is no longer made, is largely used as a substitute for or with cocaine, though the latter will probably not be superseded when rapid effects are desired. It is said that very good results are obtained by a mixture of the salts, producing a rapid and prolonged anæsthesia. The mixed solution cannot be heated, and should be made freshly with cold sterilized normal salt solution. The toxicity is supposed to be controlled and the effect heightened by addition of adrenalin chloride, and if it is desired to keep the solution for use chloretone is also added. It is stated that less than 1 per cent. of each salt and of the 1 in 1,000 solution of adrenalin suffices.

**Eucaine Lactate** is advocated for Dental use by *Langgaard (Therapeut. Monat.)* in from 2 to 3 per cent. solution.

**Eugenol** is now official in the new U.S.P., as made from oil of cloves. As an unsaturated aromatic phenol, its long use in dentistry is justified by its sedative, antiseptic, and bland properties. Saturated with chloretone it is very efficacious in pulp irritation.

**Eugoform**, a product of guaiacol and formaldehyde, is the latest 'iodoform substitute.' It is used either as a powder or dissolved in glycerine.

**Eugox**; zinc oxide, mixed to a paste with eugenol, has been recommended as a dressing or temporary filling in sensitive cavities, and for sealing in devitalizing applications. For arsenical dressings it should certainly not be used, as it sets but slowly and imperfectly even when kept dry.

**Evolutionary** changes in the human head, face, jaws, and teeth are discussed in a paper by *Eugene S. Talbot*, read at the Congress at St. Louis, and illustrated in *D. Cos.*, XLVI., p. 897.

**Exhibition.** The *Dental Surgeon*, in the issue for February 3

of this year, made the important announcement that the proprietors had undertaken the organization of the first of a series of annual Dental Exhibitions, to be held in London every spring, for the general assembling of all classes of the profession, registered or qualified, in Great Britain. The editor dwelt upon the contrast presented between the large dental conventions so frequently held in America and the smaller and somewhat exclusive meetings or exhibitions in this country. Commenting upon this, he says :

‘ This policy has tended to paralyze dental initiative, to deprive the profession of the advantages of fresh trade impulses, and largely to atrophy commercial enterprise.’

Respecting the arrangements in hand for the first meeting of the series, it was announced that the exhibition will be held in the elegant and spacious Cavendish Rooms, Mortimer Street, Regent Street, W., from Monday, April 23, to Friday, April 27, a week after the end of the Easter vacation, and at the opening of the London season. Already many of the best known dental depots have secured space for their exhibits, and we confidently anticipate a great gathering of dental practitioners. Demonstrations are being arranged, and papers will be read on dental art, science, and politics.

As a wide appeal has been made to the manufacturers and dealers in all dental specialities—and the interests of this industry should be encouraged in every way by the profession—it may be frankly said, even by those who most assiduously attend the regular annual professional meetings, that many will welcome an opportunity of more carefully and leisurely examining the exhibits than is possible during the hurried hours of, for example, the functions of the British Dental Association.

Mr. Ernest Schofield, the well-known dental transfer agent, of 32, Sackville Street, Piccadilly, W., has con-



sented to act as secretary to the Organizing Committee, so that the general arrangements are in capable hands.

It will be interesting if the confidence of the profession and the firms engaged in our industries is gained, by the inaugural exhibition, to an annual function which need not clash with others connected with special organizations or societies.

**Expansion of Plaster of Paris** and its bearing upon the use of this material for impressions and models. *J. H. Prothero* gives (*D. Digest*, IX., p. 1337) some interesting and suggestive continuations of the classic experiments of Mr. Bowman McLeod.

A curious result is that stirring the mixture when water is being incorporated with plaster has a very marked effect upon increasing the expansion. Among the main results of an investigation which Dr. Prothero feels very incomplete are the undoubted facts that there should be a minimum of stirring, that a plaster impression should be 'cast' or 'filled' as soon as possible, and the model removed from it as early as practicable. Also that no solution or salt added to the water seems to have any effect in controlling the ultimate expansion.

**Expansion versus Extraction** in regulating was very fully discussed by a paper by *Harry Baldwin*, followed by a discussion, at the Metropolitan Branch of the B. D. A., reported in *B. D. J.*, XXIV., p. 350. Within carefully-stated limits and conditions the author thought expansion often justifiable, and used the Coffin split spring plate. In the discussion, during which one or two expressed their preference for screw appliances, Mr. Badcock mentioned that in plain biting plates he frequently preferred to make them split with the Coffin wire spring, so that they also acted the purpose of expanding plates.



## F.

**Facial Degeneration** is considered by *Augene S. Talbot* to be often an arrest of evolution for the benefit of the development of the brain. In a paper read at the St. Louis Congress (*D. Cos.*, XLVI., p. 897) he says: 'This phase of evolution underlies all pathology of the face, as well as of the nose, jaws, alveolar process, and teeth. The illustrations, supplementing those of Camper, portray this reverse phase, where symmetry of the body as a whole is sacrificed to changes in the nose, jaws, alveolar processes, and teeth, so as to preserve brain gains. From the relations of this face degeneration nearly all diseases of the nose, jaws, alveolar processes, and teeth result.'

**Fairfield Street Nitrous Oxide Co., The.** See **Manufacturers, etc.**

**Fat in the Preservation of Teeth.** *W. D. Miller* (*D. Cos.*, XLVI., p. 990) says: 'It is known that the enamel of the teeth contains a minute quantity of fat, and Professor Liebreich, of the University of Berlin, used to maintain that the object of this fat was to protect the tissue against the action of acids. I am not prepared to accept this view myself, but I am convinced that the more or less fatty character of our foodstuffs does have a certain modifying influence upon the course, or at least upon the origin, of caries. Pieces of ivory which had been half immersed in turpentine or melted butter, and afterwards exposed to the action of weak acids, were considerably less decalcified on the surface which had received the protecting coat of fat. This is readily understandable. We likewise know that very loose molars in the mouth without antagonists are usually found to be covered with a greasy deposit, and that they do not decay in this condition.'

'Undoubtedly a coating of fat on the surfaces of the

teeth, such as might be formed on partaking of food rich in fat, would tend to protect them against the action of acids; the question, however, arises in this connection whether fat itself may not undergo decomposition in the mouth, resulting in the production of acids. This, however, is not probable, in view of the fact that fats mixed with saliva and kept at blood temperature give rise to an alkaline and not an acid reaction. This fact makes it all the more probable that fats act to a certain extent as protectors of the teeth.'

*J. Sim Wallace* ('The Cause and Prevention of Decay in the Teeth') writes: 'I have made numerous observations which seem to me to indicate that the relative freedom from caries among people who eat much fat is out of all proportion to what one might expect, if one considered fat as neutral in its action on the teeth. Nor do I think that we can account for this freedom from caries in fat-eaters by the fact that these people may eat relatively less carbohydrates.'

The presence of fat upon the surfaces of teeth (especially of those unused) may be accounted for by the action of oral bacteria forming fatty acids from food. But, as noted by Miller, the amount of this must be negligible in the setting up of fermentation.

**Fatty Degeneration** of the pulp is found in old teeth, and it has been observed in those pulps which have been 'capped' in filling.

**Federation, International Dental.** See **Societies.**

**Feverishness in Children.** *C. W. Chapman*, in the 'British Journal of Children's Diseases,' protests against the common habit of attributing fever and other symptoms of illness in children to 'the teeth.' Dentition is a normal process which, if a child is healthy, need not cause any alarm, and which ought to be regarded as the cause of indisposition in a particular case only after

every other possible cause has been eliminated. Contemporaneously with dentition, there are certain developmental changes in the nervous system, and also in the digestive organs, preparatory to the change of diet which is about to take place, and therefore at this period these structures are particularly sensitive to all forms of irritation; and fever, convulsions, sickness, and diarrhœa are frequent occurrences in infants who are 'cutting their teeth.'

**Filling materials or methods** have not received any considerable advance during the year, excepting as regards experiments with porcelain and other substances used in the manner now termed 'inlay.' Pure gold-fused inlay has considerably displaced the laboriously built up cohesive fillings where that material is still employed. *See Inlays.*

Among new materials or modifications of filling materials introduced during the year may be mentioned various forms of the recently revived silicate cements. *See Cements.* New forms of Watt's crystal gold in thin sheets have been introduced, for which are claimed convenience and advantages; resembling the 'solila' or 'mat' gold in the method of putting up, though microscopically it has a very different appearance. Undoubtedly its form overcomes the temptation to use the old 'brick' crystal gold in too large pieces, and some excellent fillings have been made with great rapidity by experts in its use. It is confidently predicted by the advocates of inlays, of either gold or porcelain, that the old forms of gold-filling are soon to be abandoned. Others point out that there are positions of cavities where the insertion of an inlay is practically impossible. The general tendency may be said to be to abandon large gold-fillings, the insertion of which involves much time, fatigue, and strain to operator and patient. This is undoubtedly the result of improved

methods of crowning, the development of inlay work, and an increasing dislike to the large display of gold.

**Flemings'** and Turnbull's tincture of aconite, it should be remembered, are at least twelve times as strong as the tincture of the British Pharmacopœia.

**Flint Edge Alloy Co., The.** See **Manufacturers, etc.**

The Flint Edge Alloy Co. have introduced a very simple and cheap saliva ejector, which can be worked by the patient pressing the bulb. It has been taken up by the Edinburgh Dental Hospital.

**Flowers of Camphor**, or powdered camphor ball, is largely used as a packing for gold or platinum in making matrices for inlays, as it burns away perfectly when invested. See **Inlays**.

**Food**, especially in infancy and childhood, and its influence upon the development of teeth and their subsequent condition, continues to be much discussed by both the medical and dental professions.

An interesting paper was read upon vegetarianism at the B. M. A. meeting at Leicester by *James F. Rymer* (*B. D. J.*, XXVI., p. 1131), in reference to dental caries.

The very remarkable investigations of Dr. Hall, of Leeds, made a great sensation among medical men, dentists, and sanitarians. His statistics have not been challenged, but his results have been widely quoted and discussed in this country and in America. At the presidential address of a branch of the B. D. A., *A. B. Wolfenden* (*B. D. J.*, XXVI., p. 53) largely quotes from him, and adds:

'Twenty-five or thirty years ago it was the rule for mothers to nurse their own children, and an exception to see a baby being hand-fed; while at the present time it is quite the reverse. The mothering power of our women has deplorably diminished, and this is largely due to the household cares and the social engagements of the "well-

to-do," to the irregularities of city life, and employment of women in workshops and factories, and to the want of due consideration of both classes for the important function of the pregnant and breast-nursing mother.

'It is a fact that 90 per cent. of our children are hand-fed, and of the 150,000 infants who die annually in this country in the first year of life, three-fourths have been artificially fed.

'During the last registered quarter 26,968 children died under one year—nearly at the rate of 300 every day. We have it on authority that babies are not uncommonly fed on tea and coffee, beer and spirits, patent foods, and condensed milk, all of which are absolutely unfit for a delicate organism, which during early life should only have the milk of its mother, or its nearest substitute.

'There is no food like the milk of a healthy mother, and if mothers would feed their own children, instead of weaning them and resorting to substitutes, we should no longer hear of these amazing death-rates.

'Do the public realize what these figures mean? At a time when, of all others, the British Empire needs men and women, the birth-rate is diminishing, while of the young lives brought into being many thousands are annually sacrificed through ignorance, carelessness, and crime.

'Healthy breast-fed infants almost invariably have, when they grow up, a better set of permanent teeth than do those who are artificially fed. Infants who have been fed on patent foods, or on an excess of sugar in any form, or who have manifested symptoms of rickets, or had digestive disorders, or those who have cut their teeth late or with difficulty, ultimately possess a faulty set of permanent teeth.'

In the debate which ensued, Mr. Cocker said :

'The interest which Dr. Hall, of Leeds, had aroused on the question of the feeding of infants and school

children was such that his experiments and investigations had not only met with the approbation of the teaching profession, but they had also come under the notice of the Education authorities at Whitehall, and partly as a consequence of that he believed the system he had adopted of giving a good dinner a day to slum children would in all likelihood be undertaken by them, and carried out in all the slum districts of our large towns. When one considered that a good square meal could be provided at a cost of a trifle over a penny per child, he thought the scheme was worth trying.'

Of course, 'we are all Socialists now,' but it is an honour for the profession to have spoken so distinctly.

**Food Preservatives** should be most energetically guarded against, and caution especially given to parents against its surreptitious introduction into infants' food or milk. In Germany it has lately been proved that even the most minute quantities of presumably harmless substances, such as boracic acid, salicylic acid, borax, not to mention formalin, has, in addition to general and gastric disturbance, had a distinctly prejudicial effect upon the temporary teeth. It has recently been stated on good authority that small quantities of peroxide of hydrogen may be harmlessly added to milk, and considerably delays its spoiling.

**Formalin** (more properly called formol), an aqueous solution of 40 per cent. of formaldehyde, has not quite fulfilled the early promise of an antiseptic which could be used in sufficient strength to be otherwise harmless. In fact, according to the careful researches of Dr. Miller and Dr. Hunt, it seems for general use inferior to benzo-boracic acid. It has, however, been considerably used for the sterilization of instruments, and seems, when used full strength and carefully, most admirable in root treatment. Reports have been made of its success in im-



mediate treatment after nerve extirpation, when inserted as a paste with zinc oxide or other inert powder. *Stanley P. Mummery* highly praises its use in a letter to *B. D. J.* (XXV., p. 509), saying :

‘The method adopted consists simply in thoroughly cleaning the canal mechanically with bristles, syringing out all débris with some antiseptic fluid, as 1 in 40 carbolic, then lightly drying the canal with cotton-wool, and passing up successively three or four broaches, carrying wool dampened, not soaked, in 40 per cent. formalin. A dressing of the drug is then sealed in with gutta-percha for twenty-four hours. The treatment of chronic cases is, of course, a more tedious process, but it is surprising how soon a discharge that has continued for months, and even years, will cease and the roots become sweet again under the influence of this drug. The great advantage which formalin possesses over other preparations is its penetrating power, and the fact that it gives off a strongly germicidal vapour, which will reach places otherwise inaccessible. As to any bad effects following its use, I have never seen or heard of any, beyond occasional slight pain, which lasts from a few minutes to half an hour in a few cases. The only caution with regard to its use is that the amount introduced at one time on a broach must not be in sufficient quantity to run the risk of pumping it through the apex of the tooth, as in soft tissues it acts as a most violent irritant.’

For the treatment of dental caries, *André* and *Marion* propose a mixture consisting of—

Formaldehyde (40 per cent.)	} āā 40·0 (oz. $1\frac{1}{3}$ )
Alcohol (89 per cent.) ...	
Ol. geranii ... ..	
	20·0 (oz. $\frac{2}{3}$ )

A very convenient and agreeable form of this chemical is called ‘lysoform’ (not to be confounded with ‘lysol’),

which consists of a liquid formaldehyde potash soap. It is pleasant for the skin, has a very high bactericide action, even when greatly diluted, is freely miscible with water or alcohol, and does not coagulate albumin. It is very suitable for the basis of a pleasant mouth or toilet soap, tooth paste or powder. A 2 per cent. solution freshly made is efficacious for instrument sterilization. *See also*

**Gargarisma Formaldehydi.**

**Friese** (Vve. Jules). *See* **Manufacturers, etc.**

**Fuhrmann and Company.** *See* **Manufacturers, etc.**

**Furmansky (M.) and Nurick.** *See* **Manufacturers, etc.**

## G.

**Gallogen**, or ellagic acid ( $C_{14}H_6O_8$ ) is a yellow, odourless powder of pleasant taste. It dissolves in alkaline solutions, but is insoluble in other usual solvents, and has been suggested as an astringent antiseptic in alkaline mouth-washes.

**Gargarisma Formaldehydi**, a gargle which has become a favourite at Guy's Hospital, contains a minim to each ounce of water, and is as strong as can well be used in the mouth. *See* **Mouthwashes.**

**Gaultheria**, or wintergreen oil, on account of the large amount of methyl salicylate contained, is found to be one of the most efficacious aromatic flavourings for mouth preparations, when its peculiar odour is not objected to. It is in a great number of widely-sold proprietary articles.

**Gelseminum** has been found a very useful addition to the butyl-chloral preparations for trigeminal neuralgia, for which the compound is thought by some to be the best remedy. Must be used cautiously, as there is often idiosyncrasy of intoleration.

**Gem stones**, mounted as burs for engine points, but not always correctly named, are increasingly used in cavity preparation, especially where, as in inlay work, the

margins have to be as smooth and fine as possible. It is, however, considered by some operators that for gold fillings the smooth walls resulting are not so perfectly sealed as if rougher. They may be used dry or wet, but when exceptional dryness is not ensured are better used wet, being generally then less painful.

**General Medical Council** of Medical Education and Registration of the United Kingdom, the supreme controlling body of the medical and dental professions (subject only to appeal to the Privy Council), was established by the principal statute of 1858, and specially incorporated with further powers by an Act of 1862.

The constitution of the Council is at present as follows :

*President of the General Council :*

Donald MacAlister, M.D.

*Members of the General Council :*

Norman Moore, M.D.	-	-	Chosen by the	Royal College of Physicians of London.
Henry Morris	-	-		Royal College of Surgeons of England.
Sir Hugh Reeve Beevor, Bart., M.D.	-	-		Apothecaries' Society of London.
Arthur Thomson	-	-		University of Oxford.
Donald MacAlister, M.D.	-	-		University of Cambridge.
Sir George Hare Philipson, M.D.	-	-		University of Durham.
Philip Henry Pye-Smith, M.D.	-	-		University of London.
Alfred Harry Young, M.B.	-	-		Victoria University.
Robert Saunby, M.D.	-	-		University of Birmingham.
Richard Caton, M.D.	-	-		University of Liverpool.
William T. Cocking, M.D.	-	-		University of Sheffield.
Sir John Batty Tuke, M.D., M.P.	-	-	Chosen by the	Royal College of Physicians of Edinburgh.
Patrick Heron Watson, M.D.	-	-		Royal College of Surgeons of Edinburgh.
John Lindsay Steven, M.D.	-	-		Faculty of Physicians and Surgeons of Glasgow.
Sir Thomas Richard Fraser, M.D.	-	-		University of Edinburgh.
Thomas McCall Anderson, M.D.	-	-		University of Glasgow.
David White Finlay, M.D.	-	-		University of Aberdeen.
John Yule Mackay, M.D.	-	-		University of St. Andrews.
Alfred George Barns, M.D.	-	-		University of Leeds.

Sir John William Moore, M.D.	Chosen by the	Royal College of Physicians of Ireland. Royal College of Surgeons in Ireland. Apothecaries' Hall of Ireland.
Sir Thomas Myles, M.D.		
Francis George Adye-Curran, M.D.		
Edwin Hallaran Bennett, M.D.		University of Dublin. Royal University of Ireland.
Sir Christopher John Nixon, M.D.		
Charles Sissmore Tomes, M.A.	Nominated by	His Majesty, with the advice of his Privy Council.
William Henry Power, C.B.		
Sir John Williams, Bart., M.D.		
David Caldwell McVail, M.B.		
James Little, M.D.		
George Brown, Esq.	Elected as	Direct Representatives.
Sir Victor Alexander Haden		
Horsley, M.B., B.S.		
George Jackson, Esq.		
William Bruce, M.D.		
Sir William Thomson, C.B., M.D.		

*Treasurers of the General Council*: Philip Henry Pye-Smith, M.D., and C. S. Tomes, F.R.S.

*Registrar, and of the Branch Council for England*: Henry E. Allen, LL.B., The General Medical Council Office, 299, Oxford Street, London, W.

*Registrar of the Branch Council for Scotland*: James Robertson, Esq., 54, George Square, Edinburgh.

*Registrar of the Branch Council for Ireland*: Richard J. E. Roe, 35, Dawson Street, Dublin.

The principal powers and duties entrusted to the Medical Council by the Dentists Act of 1878, and as amended by the Medical Act of 1886, are thus defined:

'In this Act "General Council" means the General Council of Medical Education and Registration of the United Kingdom, established under the Medical Act, 1858; and "Branch Council" means a branch of the said Council as constituted by the same Act.

'The General Council shall cause a correct copy of the Dentists' Register to be from time to time, and at least once a year, printed under their direction, and published and sold, which copy shall be admissible in evidence.

'The General Council may, if they think fit, from time to time make, and, when made, revoke and vary, orders for the registration in (on payment of the fee fixed by the orders) and the removal from the Dentists' Register of any additional diplomas, memberships, degrees, licenses, or letters held by a person registered therein which appear to the Council to be granted after examination by any

of the medical authorities in respect of a higher degree of knowledge than is required to obtain a certificate of fitness under this Act.

‘The General Council shall for the purpose of exercising in any case the powers of erasing from and of restoring to the Dentists’ Register the name of a person or an entry, ascertain the facts of such case by a committee of their own body, not exceeding five in number, of whom the quorum shall be not less than three, and a report of the committee shall be conclusive as to the facts for the purpose of the exercise of the said powers by the General Council.

‘The General Council shall, from time to time appoint and shall always maintain a committee for the purposes of this section, and subject to the provisions of this section may from time to time determine the constitution and the number and tenure of office of the members of the committee.

‘The committee from time to time shall meet for the despatch of business, and subject to the provisions of this section, and of any regulations from time to time made by the General Council, may regulate the summoning, notice, place, management, and adjournment of such meetings, the appointment of a chairman, the mode of deciding questions, and generally the transaction and management of business, including the quorum, and if there is a quorum the committee may act, notwithstanding any vacancy in their body. In the case of any vacancy, the committee may appoint a member of the General Council to fill the vacancy until the next meeting of that Council.

‘A committee under this section may, for the purpose of the execution of their duties under this Act, employ at the expense of the Council such legal or other assessor or assistants as the committee think necessary or proper.

‘Subject to the provisions of this Act, the General Council may from time to time make, alter, and revoke such orders and regulations as they see fit for regulating the general register and the local registers, and the practice of registration under this Act, and the fees to be paid in respect thereof.

‘Every medical authority shall from time to time, when required by the General Council, furnish such Council with such information as such Council may require as to the course of study and examinations to be gone through in order to obtain such certificates as are in this Act mentioned, and generally as to the requisites for obtaining such certificates; and any member or members of the General Council, or any person or persons deputed for this purpose by such Council, or by any branch council, may attend and be present at any such examinations.

‘Where it appears to the General Council that the course of study and examinations to be gone through in order to obtain such certificate as in this Act mentioned from any of the said colleges or bodies are not such as to secure the possession by persons obtaining such certificate of the requisite knowledge and skill for the efficient practice of dentistry or dental surgery, the General Council may represent the same to His Majesty’s Privy Council.

‘If it appears to the General Council that an attempt has been made by any medical authority to impose on any candidate offering himself for examination an obligation to adopt or refrain from adopt-



ing the practice of any particular theory of dentistry or dental surgery as a test or condition of admitting him to examination, or granting a certificate of fitness under this Act, the General Council may represent the same to the Privy Council, and the Privy Council may thereupon issue an injunction to the authority so acting directing them to desist from such practice, and in the event of their not complying therewith, then to order that such authority shall cease to have power to confer any right to be registered under this Act so long as they continue such practice.

‘The General Council shall have the same power of making rules respecting the examination of persons desiring to obtain certificates of being qualified to practise dentistry or dental surgery as they have for the time being in respect of the examination of persons desiring to obtain a qualification to practise medicine and surgery, and there shall be the same right of appeal to the Privy Council against such rules.

‘The General Council and the Privy Council shall have the same control over the Medical Board, so far as regards the examination of persons desiring to practise dentistry or dental surgery, as they have as regards the examination of persons desiring to practise medicine and surgery, and shall have the same power of dismissing the members of such Board.

‘The General Council may cause to be framed, and may approve, and when approved submit to the Privy Council, a scheme to carry into effect the provisions of this Act with respect to a Medical Board, and rules respecting examinations, and for extending, with or without any exception or modification, to the examination of persons desirous of practising dentistry or dental surgery, the provisions of any Act for the time being in force with respect to the examination of persons desiring to practise medicine or surgery, and any such scheme when confirmed by the Privy Council shall have full effect.’

One of the events of interest to the profession was the renomination in 1903 of Mr. C. S. Tomes by the Crown to a seat upon the General Medical Council for a further period of five years, and his subsequent election as one of the Treasurers.

Upon this the *Journal of the British Dental Association* said :

‘While we must admit that as Crown nominee Mr. Tomes is not only the best and ideal representative, and perhaps for the time being all sufficient for dental interests upon the Council, a time may come when it will be the duty of the profession to secure that direct representation which it undoubtedly requires, and should demand, independently of the accidental circumstances of Crown nomination. There can hardly be a doubt that if appealed to, and approached by such a body as the British Dental Association, when circumstances are propitious, Parliament could not deny a right in accordance with the traditions of all sections of the legislature.



'While, however, Mr. Tomes is able and willing to work for us as he has in the past, we can well afford to wait for the full effect upon the sentiments of the Council, the Privy Council, and the medical profession at large which his brilliant and invaluable services will inevitably produce.'

Mr. Tomes brought up the burning question of the alleged inaccuracy of the Dentists' Register, with a formal notice of motion; and as this matter has an important bearing upon the compilation of a special topographical directory, such as the *Dental Annual* published for the first time in 1904, and Mr. Tomes's remarks are so pertinent to the need of a corrected and revised directory, we reproduce his words in full:

Mr. TOMES stated that the notice of motion was not a censure on the Registrar. A formal representation had been made to him that a Committee of the British Dental Association had been investigating the Dentists' Register, and that they found it very imperfect in three respects. They said it was, in the first place, very imperfect in reference to the persons not registering who had qualifications. That was nothing to do with the Council or the Registrar. In the second place, they said it was very imperfect in reference to the fact that a number of names of people who were still living and practising at the same address had gone off the Register. That, he took it, was no affair of the Registrar. The third complaint was that the names of a considerable number of persons who were dead still remained upon the Register. That, it was suggested, was due to the fact that a great many of those people who got upon the Register in virtue of being in practice before the year 1878 were chemists, and the probability was that the registrars had returned certificates of death as being chemists to the Pharmaceutical Society, and had not sent them to the Medical Council office, not regarding them as dentists—and very likely they were not *bonâ fide* dentists. He had put the notice of motion down on the programme in order that Mr. Allen might have an opportunity of explaining what steps were taken to keep the Register as correct as possible. He would like to suggest, if it met with the Registrar's approval, that the Registrar or Council of the Pharmaceutical Society should be asked to furnish lists of the names which were struck off each year by them through death, because he conceived it to be quite possible that a great many of the names which remained on the Dentists' Register were those of chemists. Although they did not know the average age of people who registered prior to 1878, an attempt to investigate what their death-rate had been—supposing them to have been about twenty-one years of age—showed that they enjoyed a most desirable longevity; they were not dying off at the rate that they should.

Mr. H. E. ALLEN (the Registrar), in reply to Mr. Tomes's remarks, said that gentleman had spoken of three categories. With regard to

the first, although it did not come within the province of the Medical Council to make recruits for the Register, they did. There was a notice which through the goodness of the licensing bodies, was put into the hands of every practitioner who was qualified, both medical and dental, and in that notice was a paragraph which urged the holder of a diploma to at once register it, so that something was done even in that line. With regard to the second point, he thought the statement he was about to make would clearly explain why so many people might possibly be off the Register and be entitled to be on. He would like to recall the attention of the Council to the fact that under the section of the Act which dealt with the question (Section 12) the Registrar had the power of sending circular notices in all cases where there was any doubt as to the correctness of a practitioner's address, and if that notice came back through the Dead Letter Office in three months, or if it did not come back within six months, and no notice whatever was taken of it, the Registrar had the power to assume that the person had ceased to practise, and to erase his name as if he were dead. The paragraph also gave power to the Registrar to send subsequent notices. He should say that before resorting to those powers they relied a good deal upon the voluntary intimations of registered practitioners. He had looked through the notices, and found that about 300 notices of change were sent in voluntarily by dentists in the course of the year. They also tried to encourage voluntary information by printing on every certificate a notice asking the holder to acquaint the Council with such facts. A printed notice was enclosed, suggesting that the practitioners should supply the Council with the latest information, but voluntary information was altogether insufficient. Under Section 12 of the Act, whenever they had the least doubt about the accuracy of a man's address, a circular-letter was sent under that clause of the Act. Not only so, but there were periodical issues of the circular. During the last ten years there had been three such wholesale issues of the circular to every person on the Register. There was one in 1893. On that occasion 37 names were erased, and it was found that there were 44 deaths. Three years after, in 1896, the circulars were sent out again to every name on the Dentists' Register, and as a result 153 names were removed and 48 deaths. Then quite recently, in 1899, three years after the second issue, there was a third issue to everyone on the Register, and as that was modern history he might supply the members with a little more detail in regard to it. 4,962 circulars were sent out, and as a result 221 circulars were received back through the Dead Letter Office, the names being taken off. But there was a body of 1,800 persons who did not answer. After waiting a little while, at the beginning of 1900 he sent out a second circular to those men who had not previously answered, and the result of that was that 145 names were removed. But he still found there was a residuum of 263 persons who had not answered even the second circular. They did not answer the first nor the second. Registered letters were sent to those 263 persons, and as the result there were 142 from whom he still could obtain no information. Nothing came back through the Dead Letter Office, and no answer came back. In the case of the 142 persons he used the power, which he was very loth to use, of erasure. He only

erased a name, as a rule, on the face of a returned dead letter; but in the case of the 142 practitioners who had been applied to three times, and from whom no answer had been received, their names were removed on account of their silence, therefore removing a great many of the dead men to whom Mr. Tomes had referred. The members would understand that, as a consequence of the issue of the circulars of 1899 and 1900, 508 names were removed altogether; that would account for the fact that there might have been some persons entitled to be on the Register who, through their negligence, had had their names taken off the Register. He would like to say one more word with regard to Mr. Tomes' suggestion as to the Pharmaceutical Society. He had to say with regard to that that it would be quite in accordance with their usual methods to encourage and welcome the help which they might thus obtain. The Medical Council had not been in the habit of taking its stand merely on the Act, and saying: 'We have made our inquiries according to Section 12, and we can do no more.' On the contrary, they welcomed and utilized all the voluntary help which they could obtain from the public. There were certain firms connected with the business of dentistry—Messrs. Ash and Messrs. Rutterford—who had kindly given them information which they received in the course of their business transactions. There was a member connected with the dental press who for several years was good enough to supply the Council with lists of cases in which it was thought that the addresses were doubtful, and only during the present week he had received a communication at some length from the secretary of the North Midland Branch of the British Dental Association, who, writing from Leeds, had been good enough to supply him with a list also. The Council would understand that he could not in the case of such extraneous information act directly upon it, but indirectly it was most valuable. He had the Council's circulars of inquiry sent to all those persons whose cases were considered doubtful, and as a result a good deal of useful information was obtained, and the names of dead men were removed from the Register. Therefore, as far as he was concerned, he should be only too glad to avail himself of the suggested sources of information to which Mr. Tomes had referred.

The following letter from the Dental Representative on the Council appeared in the *British Dental Journal* for October, 1903, p. 678:

'THE GENERAL MEDICAL COUNCIL AND ITS FUNCTIONS.

'It has happened on several occasions, and once very recently that anonymous letters have been sent to me containing complaints of the conduct of registered dentists, with a request that the General Medical Council should take cognizance of them. The complaints, if correct in their allegations, contain charges serious in themselves. But my correspondents fail entirely to grasp the province of the General Medical Council's action. It is true that this body has occasionally appeared in the rôle of prosecutor, but this has been in cases in which the offence committed has been against the statute

law of the country. In cases in which the offence is of such a nature that the General Medical Council has to sit in a judicial capacity, it is manifestly impossible that it can act as prosecutor and as judge also. Such cases can only be taken up when brought before it by an accusation in regular form, some individual or some corporate body appearing as complainant and furnishing the evidence necessary to prove the case. I should not take any notice of anonymous and irresponsible communications were it not that the particulars alleged have sometimes been of such a nature that it is a pity that the offender should escape through the writer's want of courage to appear in the matter, and as some misapprehension as to the General Medical Council's attitude in such matters appears to prevail, I take this opportunity of stating briefly, but I hope plainly, what the necessary limitations of its actions are.

'I am, yours faithfully,

'CHARLES S. TOMES.'

A full account of the proceedings of the Dental Committee, and the action taken by the Council upon its recommendations in the sessions of 1903 and 1904, will be found in the DENTAL ANNUAL for the last two years. The matters dealt with, besides the usual penal cases and the removal and restoration of names to the Register, also included the questions of reciprocity with Germany, and the position of British dentists in the Netherlands and certain colonies.

The following report by the Dental Education and Examination Committee was, on the motion of Mr. TOMES, seconded by Dr. LINDSAY STEVEN, received and entered on the minutes :

REPORT BY THE DENTAL EDUCATION AND EXAMINATION COMMITTEE ON REFERENCES MADE TO IT BY THE EXECUTIVE COMMITTEE.

Members: Mr. Tomes (Chairman), Mr. Brown, Dr. Lindsay Steven, Dr. Finlay, Sir Charles Ball, Dr. Bennett.

I. On an application from the Dental Board of Victoria for the recognition of its diploma, the subject being remitted to the Committee on November 21, 1904, in the following resolution: 'That this application be remitted to the Dental Education and Examination Committee for consideration and report during the present Session.' In the year 1898 two gentlemen who had obtained the license of the Dental Board of Victoria applied to be registered in the colonial list, tendering papers in support of their application, which appeared to show that they had passed through a curriculum which was considered by the Council to be, roughly, the equivalent of that required



by the licensing bodies in Great Britain, and on this ground their application was granted. Shortly afterwards a communication was received from the Dental Board of Victoria, pointing out that at the time when these gentlemen were examined and their licenses granted the regulations which they had submitted in support of their application were not in force, and that, in fact, at that date no curriculum whatever was in force, so that their admission to examination was no proof of their having passed through one. No imputation of bad faith lay upon these gentlemen, who appear to have been unaware of the change which had taken place since they commenced their course of study; but, in fact, the Dental Board had been told, on high legal authority, that they had acted *ultra vires* in establishing a curriculum under the Colonial Act of 1887 (Minutes, xxxv., 325, 221, and xxxvi., 236, 103, 647). Though not relevant to the present issue, it may be mentioned that they were asked for the production of full evidence as to their curriculum, which has never been completely furnished.

In 1899, under a new Colonial Act giving the requisite authority, a fresh curriculum was established, and in the following year the Dental Board of Victoria applied that their license might be registered in this country. Acting upon a report of the Dental Education and Examination Committee (Minutes, xxxvii., 359), the Council refused to accede to this application, on the ground that the new curriculum was deficient in general subjects, though adequate in the special subjects, and that it was intended to teach an outline of medicine and surgery, etc., at the special school, without attendance at any general hospital being required. Sundry criticisms were also offered on the rules governing the examinations.

In February, 1904, the Dental Board again brought out a fresh series of regulations, which were submitted to the Council in May, 1904. On that occasion, Mr. Merrill, a member of the Dental Board of Victoria, met the Dental Education and Examination Committee, and explained certain difficulties under which they laboured in the colony, at the same time expressing willingness to bring their requirements, if possible, into harmony with those in force at home; but the Committee did not recommend the recognition of the license as it then stood, and the Council adopted their report.

On Mr. Merrill's return to Australia it would appear that action was speedily taken, with the result that once again the curriculum required has been modified, and their application for recognition of the license is now renewed.

The alterations made are very considerable, and may be summarized as consisting in a much closer affiliation with the University of Melbourne, and in the introduction of a period of attendance at a general hospital.

The University of Melbourne institutes a Dental Faculty, and a degree to be called Bachelor of Dental Surgery. The Dental Board agrees that the Dental College shall become a school of the University, and that it and the Dental Hospital shall be open to the inspection of the University authority; that the examiners appointed for the Board's license shall be the same as those appointed by the University for its degree, and that the lecturers, demonstrators, etc., of the Dental College shall be appointed subject to the approval of the Dental Faculty of the University; moreover, that no change shall

be made in the requirements of the Board for its license without the approval of the University.

Thus, the University of Melbourne, a body whose medical degrees are recognised for registration in this country, has rendered itself to a very large extent responsible for the action of the Dental Board, of the College, and of the Dental Hospital, a site for which it has granted.

This arrangement, however, though apparently agreed upon by both parties, had not passed into the form of a statute, but since the Council has been sitting a telegram has been received stating that it has been ratified by the Senate. It is terminable at any time by mutual consent, or by a year's notice on either side.

As regards the curriculum, the difference in principle which led to the rejection of the previous applications—namely, the absence of any course at a general hospital—has disappeared; but it remains to consider whether the amount of general study introduced is sufficient to be regarded as, generally speaking, the equivalent of our own.

The period of attendance upon general hospital practice is nine months, whereas, to take, for example, the most recent regulations of the English College of Surgeons for its license in dental surgery, two winter sessions are required here. Without exact and detailed correspondence, in other respects the curricula are similar.

The student in Victoria is required to pass four examinations, one at the end of each year; but a feature which was the subject of adverse comment on a previous occasion still remains—namely, a supplementary examination to be held not less than six weeks after the principal examination, at which a student who has failed may present himself for re-examination in a single subject if he has only failed in one subject, but in all subjects if he has failed in more than one subject. It is obvious that a student who has failed in several subjects cannot within so short a period have done much to strengthen his weak points.

The requirements of the Board as to preliminary examination appear to be satisfactory, and the Committee recognise that an effort has been made to bring the curriculum into conformity with that obtaining here.

The Committee, after considering the facts set out above, recommend that the license of the Dental Board of Victoria be recognised, subject to the following conditions:

1. That recognition be accorded to those licenses which are granted to students who have passed through the entire curriculum.
2. That the recognition be during the continuance of the agreement between the Dental Board and the University of Melbourne, and that notice of any alteration in this arrangement should be immediately forwarded to the General Medical Council.
3. That, like the licensing bodies in the United Kingdom, the Victorian Licensing Body furnish complete returns of all of its examinations.

And the Committee would remark that, inasmuch as the examinations of the licensing bodies in Great Britain have been inspected by the General Medical Council, and are always liable to such inspection, which is impossible in the case of a distant colony, the General Medical Council will only be able to judge of the 'sufficiency' of the



examinations by the proportion of passes and rejections, which may be fairly expected not to differ greatly from the proportion which an experience of twenty-five years has shown to obtain at the examinations of the several licensing bodies in great Britain.

II. On an Act passed in January, 1904, by the States of the Isle of Jersey, for the regulation of the registration of dentists in the Bailiwick, and transmitted to the Committee for its information and for insertion in the minutes.

After consideration, the Committee resolved that this Act passed by the States of the Isle of Jersey be appended to this report for preservation in the minutes of the Council.

CHARLES S. TOMES,  
*Chairman.*

*November, 25, 1904,*

We published last year the text of the Medical and Dental Statutes of Victoria, also the *Règlement sur l'Exercice de la Profession de Dentiste dans cette Île. Aux États de l'Île de Jersey l'An 1904, le 21<sup>e</sup> Jour de Janvier.*

At a meeting of the Executive Committee, February 27, 1905—

The PRESIDENT reported as to the action that had been taken by him since the last session of the General Council in regard to the subject of the registration of Medical and Dental Companies, and called attention to a recent judgment in the Irish courts directing the removal of a dental company from the list of registered companies.

Sir JOHN BATTY TUKE read correspondence which had passed between himself and various Government Departments, and the Chairman of a Departmental Committee of the Board of Trade on the operation of the Companies Acts.

Resolved: 'That these additional documents be referred to the Companies Bill Committee of the Council for its information.'

#### DENTAL BUSINESS.

(1) The Registrar reported that—the prescribed conditions having been duly fulfilled in each case—the names of the undermentioned persons had been restored to the Dentists' Register, from which they had been erased in conformity with the provisions of Section 12 of the Dentists Act, 1878:

Griffith, Charles; Schofield, Henry; Thomas, Alfred H.

Read: The following communications from the Colonial Office in regard to the registration of dentists:

#### (a) IN NEW ZEALAND.

'1904, No. 57.

'An Act to provide for the Registration of Dentists qualified to practise, and for the regulation of the Practice of Dentistry in New Zealand.—November 8, 1904.

'Be it enacted by the General Assembly of New Zealand in Parliament assembled, and only by the authority of the same, as follows:

'1. The Short Title of this Act is "The Dentists Acts, 1904," and it shall come into force on the tenth day of January, one thousand nine hundred and five.'

Then follows several usual interpretation clauses.

*'Registration.*

'3. (1) The Registrar shall keep in his office a book called the "Dentists' Register," in which shall be inserted the names, residences, and qualifications of all persons registered under this Act, which book is referred to herein as the "Register."

'(2) Every person whose name is entered in the Dentists' Register under "the Dentists Act, 1880," at the coming into operation of this Act shall be registered under this Act without application or payment of fees, and until a Register has been compiled under this Act the Register under that Act shall be the Register under this Act.'

Sections 4 to 8 deal with the custody and publication of the Register.

'9. Every dentist who obtains any higher degree, diploma, status, or any qualification other than the qualification in respect of which he is registered shall be entitled to have such high degree, diploma, status, or additional qualification inserted in the Register on payment of the prescribed fee.

'10. Every adult person is entitled, on application to the Registrar, and on payment of the prescribed fee, to be registered as a dentist who—

'(a) Is registered or is entitled to be registered in the United Kingdom in accordance with the law for the time being in force therein as a dentist or medical practitioner; or

'(b) Is the holder of a degree in dental surgery of the University of New Zealand, or has gone through such course of study and professional practice and training, passed such examinations, and obtained from the Senate such certificates of proficiency in dental surgery or dentistry as the Senate by regulations prescribes; or

'(c) Is entitled, in accordance with the provisions of this Act, to be registered as a foreign or colonial dentist; or

'(d) Satisfies the Registrar that he has been engaged other than as an apprentice or pupil in New Zealand for a period of not less than three years immediately preceding the passing of this Act in the work of extracting, stopping, and otherwise treating natural teeth, and of fitting and adjusting artificial teeth, and who for the last three months of such period has been so engaged as a principal:

'Provided that this subsection shall not apply to any person who has been engaged in the work of extracting teeth only:

'Provided also that no application under this subsection made after the first day of January, one thousand nine hundred and five, shall be entertained.

'11. (1) Notwithstanding anything in this Act, any person who either—

'(a) Is, at the time of the passing of this Act, a *bonâ-fide* apprentice

or pupil of a person registered under "the Dentists' Act, 1880," or of one or more such persons; or

- (b) Has, prior to the time of the passing of this Act, been for at least three consecutive years a *bona-fide* apprentice or pupil of a person registered under "the Dentists Act, 1880," or of one or more such persons, and has been continuously and wholly engaged during that period in studying the theory and practice of dentistry or dental surgery,

shall be entitled to be examined by a Board of Examiners appointed in accordance with the law as it existed immediately prior to the commencement of this Act, and to be granted a certificate by such Board and registered as a dentist upon passing such examinations and fulfilling such other conditions as would, if this Act had not been passed, have entitled him to such certificate and to be so registered:

'Provided that such Board may in special cases recognise the apprenticeship or pupilage of any such person, notwithstanding that the three years of his apprenticeship and pupilage may not have been consecutive, or his period of study continuous.

'(2) For the purposes of this section the Acts hereby repealed shall remain in full force as if this Act had not been passed, save as modified by the proviso to the last preceding subsection; but no application for registration in pursuance of this section made after the first day of January, one thousand nine hundred and ten, shall be entertained.

'12. Any person showing that he holds some recognised certificate as hereinafter defined granted in a British possession, and that he is of good character, shall, upon payment of the fees, be entitled, without examination, to be registered under this Act.

'13. Any person showing that he holds some recognised certificate as hereinafter defined granted in a foreign country, and that he is of good character, and either continues to hold such certificate, or has not been deprived thereof for any cause which disqualifies him for being registered under this Act, shall upon payment of the fees be entitled, without examination, to be registered under this Act.

'14. This certificate, granted in a British possession or in a foreign country, which is to be deemed such a recognised certificate as is required for the purposes of this Act, shall be such certificate, diploma, membership, degree, license letters, testimonials, or other title, status, or document as may be recognised by the Senate as entitling the holder thereof to practise dentistry or dental surgery in such possession or country, and as furnishing sufficient guarantee of the possession of the requisite knowledge and skill for the efficient practice of dentistry or dental surgery.'

Sections 15 and 16 define the power of the Senate to approve of certificates, and give right of appeal to an examination, and in certain events to the Judge of the Supreme Court.

Sections 17 and 18 are penal clauses.

#### *'Effect of Registration.*

'19. Every person registered under this Act and every medical practitioner shall be entitled to practise dental surgery and dentistry in any part of New Zealand, and to sue in any competent Court for the recovery of his fees or other remuneration for his professional

service in dentistry, or in the performance of any dental operation, or for any dental attendance or advice.

'20. From and after the coming into operation of this Act, no person other than a medical practitioner or a dentist shall hold any appointment as a dentist, or dental practitioner, or dental surgeon in any hospital, infirmary, dispensary, or in any lunatic asylum, gaol, or in any institution receiving financial aid from the Government or licensed under any Act; or be entitled to recover any fee or charge in any court of law for the performance of any dental operation, or for any dental attendance or advice; provided that a person who practises as an extractor of teeth only shall not be deemed to perform dental operations within the meaning of this section.

'21. (1) From and after the coming into operation of this Act, no person other than a person registered under this Act or other than a medical practitioner shall, nor shall any company or association (other than an association consisting wholly of dentists), take or use or by inference adopt the name, title, word, letters, addition, or description of "dentist," or "dental practitioner," or "dental surgeon," or "surgeon dentist," or use or have attached to or exhibited at his or its place of business or residence (either alone or in combination with any other word, or words, or letters) the words "dental company," or "dental institute," or "dental hospital," or "dental college," or "college or school of dentistry," or "mechanical dentist," or any other name, title, word, letters, addition, or description implying or tending to the belief that he or such company or association is registered under this Act, is qualified to practise dentistry, or is carrying on the practice of dentistry, or is entitled to or to use such name, title, word, letters, addition or description :

' Provided that, with respect to any association which has carried on the practice of dentistry for a period of not less than three months immediately preceding the passing of this Act, the persons who have been members of such association during such period shall be permitted, though not registered as dentists, to continue as members thereof after the passing of this Act, but no other persons except dentists shall be so permitted ; and such association may continue to practise as aforesaid after the passing of this Act, but no dental operations shall be performed by any member of such association who is not a dentist, or by any person other than a dentist on behalf of such association.

' (2) In the case of an association carrying on the practice of dentistry, the names of the dentists forming such association shall be legibly and conspicuously affixed outside the premises where the association is practising.

' (3) Every person, company, or association guilty of a breach of this section is liable to a fine not exceeding twenty pounds for every such offence, and after any conviction for any such offence shall be liable to a further penalty of five pounds for every day during which such breach is continued.

'22. No dentist shall permit any unregistered person to carry on the practice of dentistry in his name, or, except under his immediate supervision, to perform any dental operation on the premises where such dentist is practising, or elsewhere on his behalf. Every dentist who permits any breach of this section, and every un-

registered person who practises or performs a dental operation in breach of this section, is liable to a fine not exceeding twenty pounds.'

The concluding sections empower the Senate to provide for education and regulate fees, etc.

'28. Notwithstanding anything in this Act, if the number of those who satisfy the Registrar that they are entitled to the benefit of subsection (d) of section 10 hereof exceeds twenty this Act shall not come into operation.'

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At the general meeting of the Board on May 23, 1905, after the introduction of Sir Thomas Myles and Dr. Atock to the Council, the President (Dr. MACALISTER) delivered his address at the opening of the eighty-first session, from which we extract the following matters of dental interest :

'In accordance with your resolution of November 29, I addressed a communication to the Lord President of the Privy Council on the subject of Medical and Dental Companies, and of the abuses to which they give rise. The Lord President, in reply, asked for detailed evidence in support of our representations. This evidence the Registrar, with the help of members of the Companies Bill Committee, was enabled to collect and to forward. It is now under the Lord President's consideration.

'It will be remembered that, according to the judgment of Chief Baron Palles, a dental company, whose proposed title is such as to mislead the public into supposing that its business is carried on by qualified persons, may lawfully be refused registration under the Joint Stock Companies' Acts. The question arose whether a company already registered, whose title was open to the same objection, might lawfully remain upon the Register. A judgment in the negative has now been given in the High Court of Justice in Ireland, by the Master of the Rolls, in the case of the Attorney-General *versus* Appleton and others. This important decision was made the subject of questions in Parliament by Sir John Tuke, who has been most active in pressing the matter on the attention of the Government; and I communicated a full report of the case, courteously furnished by the British Dental Association, to the Lord President. The purpose of these questions and communications was to ascertain what steps could be taken to procure a similar declaration of the law in Great Britain. The replies will be laid before you. The last of them, received on Saturday, is of primary importance to the dental profession; but the underlying principle admits of a much wider application. The documents indicate that definite advance is being made in the direction desired by the Council in its resolution of May 31, 1904 (*Minutes*, vol. xli., p. 87), and you will doubtless refer them to the Companies Bill Committee for its information.

'The Council will also learn with satisfaction that the accounts for the year 1904 are more favourable than those for any year since 1895. At the end of 1903 our deficit was some £2,165; at the end of 1904 it was only £218, or about one-tenth as great. The Finance Committee will report on the items which have contributed to this substantial improvement; but it is noteworthy that the result is attributable, not to any increase of ordinary income, but to greater



economy of expenditure. Whether this degree of economy can be maintained in future years without impairing the Council's efficiency it is difficult to forecast. But though I may be, as I have been, charged with incurable optimism regarding the Council's finances, I still think that, in ordinary years, equilibrium between income and expenditure is possible of attainment, even without the aid of fresh legislation; and I am strengthened in this belief by the opinion of the Finance Committee. If the vigilance of your officers is supported by the resolve of the Council to discountenance all expenditure of time and money that does not directly conduce to efficiency, it is not extravagant to hope that the accounts of the coming years may be even more satisfactory than the last. The closing year of office of my distinguished predecessor in the chair has shown us what can be done in this direction, and it will be my ambition to assist to the best of my power in maintaining the ground we have gained under his leadership.

'But while we strive after economy on the one hand, we must not neglect any legitimate means for the improvement of our income on the other. Where the equilibrium is precarious even a small addition to the right side of the balance is important. Dr. Mackay's suggestion—that the fees for the restoration of lapsed names to the Registers, and for the registration of higher titles, should be slightly raised—has proved to be fruitful, for it has added over £400 to the receipts of the year. The higher fee, so far as it represents a fine for negligence, will incidentally tend to keep the Registers more correct. The fee for recording additional qualifications, being as it were a small tax on new dignities, is paid with comparative complacency by the newly dignified. Dr. Mackay's proposal is thus abundantly justified, and the Chancellor of the Exchequer in search of fresh sources of revenue might well take counsel with him.

'The suggestion has been made from an important quarter that one of the services gratuitously performed by the Council might be made self-supporting in a similar way. I refer to the maintenance of our Students' Registers. The General Registrar, with the help of the Branch Registrars, has ascertained that the ordinary expenditure on this branch of our work—for printing, postage, salaries, and time occupied in committees and councils over its details—may be estimated at about £400 a year. Against this outlay the only receipts are some £20 a year from fees for late or exceptional registration. If a fee, say of 5s., were charged for the certificate of registration in ordinary as well as exceptional cases, the actual cost would just be covered and the Council's funds would be relieved to a corresponding extent. It is represented that for such a step no new legislation would be required, that the Students' Registers might remain on their present "voluntary" basis, that the trifling fee would be readily paid and easily collected, and that the future action of the Council and of the Licensing Bodies in regard to Students' registration would in no wise be prejudiced. If these representations are just—and I offer them for your mature consideration—the Council might be well advised to make the experiment.

'The equipment required for the better keeping of the Registers and of the documents relating to registration has now been provided, and the new system, already tried and approved in the dental depart-





## DENTAL FUND BALANCE SHEET, DECEMBER 31, 1904.

## LIABILITIES.

	£	s.	d.	£	s.	d.
To Surplus at January 1, 1904 ... ..	8,545	3	4			
Add Surplus for 1904, as per Receipts and Expenditure Account ... ..	435	19	1			
Leaving Surplus at January 1, 1905 ...				8,982	2	5
By Sundry Creditors—						
Amount due to General Medical Council ...	152	13	11			
Cash received on account of Fees for which Certificates have not yet been issued ...	26	1	0			
				178	14	11
				<u>£9,160</u>	<u>17</u>	<u>4</u>

## ASSETS.

	£	s.	d.	£	s.	d.
By Consols $2\frac{1}{2}$ per cent.—						
£8,000 0 0 as per last account ... ..	7,200	0	0			
Add 1,367 10 5 at $87\frac{3}{4}$ , transferred from Eng- lish Branch Council to liquidate loan of						
<u>£9,367 10 5</u>	<u>£1,200</u>	<u>...</u>	<u>...</u>	<u>1,200</u>	<u>0</u>	<u>0</u>
				8,400	0	0
By Cash at Bankers ... ..				711	10	10
By Sundry Debtors—						
Impressed Stamps in hand ... ..	15	2	0			
English Branch Council Interest ... ..	34	4	6			
				49	6	6
				<u>£9,160</u>	<u>17</u>	<u>4</u>

Examined and found correct,  
WELTON, JONES AND CO.

Among the yearly tables received and noted was:

TABLE SHOWING RESULTS OF PROFESSIONAL EXAMINATIONS HELD IN 1904 FOR QUALIFICATIONS GRANTED UNDER THE DENTISTS ACT.

NAME OF LICENSING BODY.	DIPLOMAS.	NATURE OF EXAMINATION.	WITH CURRICULUM.			WITHOUT CURRICULUM.		TOTAL.	
			Number Rejected.	Number Passed.		Number Rejected.	Number Passed.	Number Rejected.	Number Passed.
				PART I.	PART 2.				
ROYAL COLLEGE OF SURGEONS OF ENGLAND	License in Dental Surgery	Written, Oral, and Practical (Old Regulations)	Rej. 16	Pd. 18	Rej. 4	Pd. 8			
"	License in Dental Surgery	Preliminary Science (New Regulations)	87		90				
"	License in Dental Surgery	First Professional (New Regulations)	16		92				
"	License in Dental Surgery	Second Professional (New Regulations)	Rej. 66	Pd. 119	Rej. 21	Pd. 80			
UNIVERSITY OF BIRMINGHAM	Bachelor of Dental Surgery	Written, Practical, and Oral Thesis	...		1		...	...	1
"	Master of Dental Surgery		...		...		1	1	...
ROYAL COLLEGE OF SURGEONS OF EDINBURGH	License in Dental Surgery	Written, Practical, and Oral	1ST PROF. Rej. 8	Pd. 30	2ND PROF. Rej. 20	Pd. 30	...	28	60
FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW	License in Dental Surgery	Written, Oral, and Practical	1ST EXAM. Rej. 21	Pd. 23	2ND EXAM. Rej. 16	Pd. 24			
ROYAL COLLEGE OF SURGEONS IN IRELAND	License in Dental Surgery	Written, Oral, Clinical, and Practical	Pri. 9	Final. 6	Pri. 3	Final. 6			

Moved by Dr. Windle, seconded by Dr. Norman Moore, and agreed to : That the following Report from the Executive Committee on the dental business transacted since the last meeting of the Council be received and entered on the Minutes :

### REPORT.

(1) The prescribed conditions having been duly fulfilled in each case, the names of the undermentioned persons have been restored to the Dentists' Register, from which they had been erased in conformity with the provisions of Section 12 of the Dentists Act, 1878 : Charles Griffith, William Quantrell, Henry Schofield, Alfred H. Thomas.

(2) Copies of the following Colonial Acts relating to the practice of dentistry were received from the Colonial Office, and referred by the Executive Committee to the Dental Education and Examination Committee for its information :

'The Dentists Act, 1904,' of New Zealand.

'The Dentists Act Amendment Act, 1904,' of South Australia.

(3) The PRESIDENT reported as to the action that had been taken by him since the last session of the General Council in regard to the subject of the registration of Medical and Dental Companies, and called attention to a recent judgment in the Irish courts directing the removal of a dental company from the list of registered companies.

SIR JOHN BATTY TUKE read correspondence which had passed between himself and various Government departments and the Chairman of a Departmental Committee of the Board of Trade on the operation of the Companies Acts.

This correspondence appears as an Appendix entitled—

REPORT OF THE PRESIDENT AS TO THE PROCEEDINGS TAKEN  
SINCE NOVEMBER, 1904, IN REGARD TO THE SUGGESTED AMEND-  
MENT OF THE COMPANIES ACTS.

The General Council having, on November 29, 1904, received a Report from the Medical Companies Bill Committee, resolved :

'That a communication should be sent to the Lord President in the terms set forth in that Report.'

Accordingly, on December 7, 1904, the following letter was sent to the Lord President :

GENERAL COUNCIL OF MEDICAL EDUCATION AND  
REGISTRATION OF THE UNITED KINGDOM,  
299, OXFORD STREET, LONDON, W.

*December 7, 1904.*

MY LORD,—I have been requested by the General Medical Council to acknowledge the receipt of your Lordship's letter of October 21, and to express the Council's satisfaction that the legal advisers of the Board of Trade concur with the judgment of Chief Baron Palles,

and hold that, should a company assume a title which is calculated to deceive the public into supposing that they will receive treatment by persons possessed of special skill in medicine or dentistry, such assumption would disqualify the company for registration.

This is, so far as it goes, a step in advance. Hitherto it would appear that Registrars did not consider such disqualification to be within the scope of their duties; they deemed themselves called upon to register any company under any title so long as the formalities of the Acts were complied with.

But the step in question is, at best, a very partial remedy for the evils which have been from time to time pointed out by the General Medical Council as arising from company incorporation, as is indeed indicated in the last two paragraphs of your Lordship's letter. It is there pointed out that, if a company assumes a title to which objection is not taken, it may take powers in its objects or in its Memorandum of Association to conduct medical or dental practice without restriction as to the employment of duly qualified persons.

The inadequacy of the mere avoidance of titles containing objectionable words as a protection against the evils complained of is further illustrated by the Parliamentary Return of Companies registered for the 'specific purpose of conducting medical or dental practice,' obtained from the Board of Trade at the instance of Sir John Tuke (see enclosure). A cursory examination of the pages of a single medical journal for three years (*The British Medical Journal*) discloses the names of no less than seven medical companies, the proceedings of which have been condemned in the medical press, and one of which has on several occasions been subjected to severe comment in the findings of coroners' juries. Owing to the limitations imposed by the words 'for the specific purpose' in the Parliamentary Return, not one of these companies appears in that list. Similarly, nine companies which have been the subject of comment in the general press within the last two years are absent from the Return, whilst a number of dental companies, formed immediately after conviction by persons who have been prosecuted and convicted under the Dentists Act, are also absent from the Return.

It therefore becomes necessary to ask the attention of the Lord President to a brief statement of the facts as they appear to the General Medical Council.

In the opinion of the Council, the object of existing legislation in regard to company formation has been essentially a financial one, namely, that due protection might be afforded to legitimate financial enterprise, and that the incorporation of companies having other purposes in view was not contemplated in the Acts. In support of this opinion the circumstances attendant upon a previous attempt at legislation may be recalled. In 1899 the Council was so far successful in demonstrating the existence of a crying evil that a short Bill was introduced by the Lord Chancellor in the House of Lords, the object of which was to render companies equally liable with individuals to the provisions of the Medical and Dentists Acts. This Bill was, by Committee of the House of Lords, placed as two clauses in the Companies Acts Amendment Bill then before the House. From this Bill the two clauses were expunged in the Com-

mittee stage in the House of Commons, after the Standing Committee on Trade had decided by a considerable majority to retain them. They were dropped on the ground that they were not germane to the general tenor of the Bill, the objects of which were financial.

The Council contends and believes that it has fully established that these medical and dental companies for the most part have been incorporated for purposes quite other than financial; indeed, in very many of them the subscribed capital is merely nominal, and is the smallest amount which will comply with the requirements of the Acts, namely, about £8. Moreover, circulars have been sent out by company agents recommending company incorporation as a means of evading the prohibitory clauses of the Medical and Dentists Acts, an example of such circulars being enclosed in this letter.

It is therefore evident that some other object has been in view in their incorporation, and its nature may thus be indicated.

A limited company appears to be in a different position from an individual person in two principal respects. It is at present able to make use of titles prohibited by the Medical and Dentists Acts without being, as an unqualified individual would be, liable to prosecution and fine. By the new interpretation which has been placed upon the duties of the Registrars of companies this may be to a considerable extent remedied in the case of future companies, though, as already indicated, the freedom still possessed by such companies to put anything they think fit into their objects or Memorandum of Association weakens the protection thus afforded to the public, and encourages the adoption of methods of evading existing statutes.

It has already been pointed out that some of the companies whose conduct has been the most flagrant have already avoided putting anything so specifically professional into their title as to bring them within the Board of Trade Return; but beyond this, and of equal or greater importance, is the fact that any personal responsibility is evaded by their means.

The servants of such a company may be, and have been, by means of lectures, pamphlets, advertisements, etc., placed before the public in such a manner that persons needing professional assistance are led to suppose that they are capable of administering skilled medical or dental treatment; they may display great ignorance or be guilty of malpractice, and even be censured by a coroner's court, but no legal remedy is available against them. They are the irresponsible agents of an irresponsible company. The company itself has committed no offence known to the law, and thus protection is afforded to unqualified persons actually greater than that enjoyed by the qualified practitioner, who is required to possess a reasonable amount of professional knowledge, and to have exercised reasonable professional care and skill. Instances can be cited, if necessary, in support of this proposition.

The General Medical Council, therefore, desire me to express the hope that your Lordship will move the Government to take such steps as may be necessary to prevent the provisions of the Medical and Dentists Acts from being evaded and set at nought by persons improperly taking advantage of the provisions of the Company



Acts. I would add that the General Medical Council will, if it is desired, be prepared at the proper time to furnish detailed evidence in support of the propositions which, on its behalf, I have now advanced.

I have the honour to be, my Lord,  
Your obedient servant,  
DONALD MACALISTER,  
President.

To the Most Honourable the  
Lord President of the Privy Council.

\* \* The enclosures referred to appear in the Committee's Report (see Appendix XXIII. to the Volume of Minutes for 1904).

On December 13, 1904, the following answer to this communication was received :

PRIVY COUNCIL OFFICE,  
LONDON, S.W.

*December 13, 1904.*

SIR,—I am directed by the Lord President of the Council to state that his Lordship has under his consideration the views of the General Medical Council contained in your letter of the 7th inst. as to the evasion of the provisions of the Medical and Dentists Acts by the registration of certain Joint Stock Companies.

His Lordship observes that, owing to the form under which the Board of Trade Return of last July was made, the information is very illusory as an indication of the extent to which the practice is carried.

The General Medical Council mention a number of medical and dental companies of very indifferent reputation not included in the return, whereas it does include several hospitals, which, presumably, are not instances of the evils against which legislation is demanded ; and, as the Medical Council offer detailed evidence in support of the positions they advance, his Lordship, before deciding what further steps can be taken in the matter, will be glad to be furnished with some precise proof of the extent to which the companies in question are in active operation, and with any evidence the Council may have of the extent of the mischief.

I am, sir, your obedient servant,  
A. W. FITZ ROY.

The President of the General Medical  
Council, 299, Oxford Street, W.

To this the Registrar, under the President's direction, sent the following answer :

*February 3, 1905.*

SIR,—In answer to your letter of December 13, 1904, in which you state that, before deciding what further steps can be taken in the matter of preventing the evasion of the provisions of the Medical and Dentists Acts by the registration of certain Joint Stock Companies, the Lord President would be glad to be furnished with some precise proof of the extent to which the companies in question are in active operation, I am directed by the President to transmit for

the information of the Lord President the enclosed Lists of Medical and Dental Companies which are registered and offer to the public professional advice, but are not included in the Parliamentary Return obtained by Sir John Tuke because of the absence in their designations of the mention of any specific purpose of conducting medical or dental practice.

Many more companies might have been cited, but great care has been taken to limit the lists to those companies that are known to be registered.

According to information that has reached the office there have been at least seven cases in which, after prosecution for illegal practice, the unqualified practitioner has expressed his intention of forming his business into a company, and there is good reason to believe that in some cases this has been done, although it has not been determined with certainty that these companies have been registered under the Companies Acts.

In the event of any further definite information being received in regard to any of the companies that have been under the notice of the Council, a supplemental list will be sent.

I am, sir, your obedient servant,

H. E. ALLEN,

Registrar.

The Clerk of the Privy Council.

Following a list of companies which have been registered with the object of carrying on medical practice is the appended list of dental companies, which have been registered with the object of carrying on dentistry, but which were not included in the Parliamentary Return obtained by Sir John Tuke in consequence of the absence from their titles of any mention of the fact that they were formed for the specific purpose of conducting such practice.

1. NEWTON AND HOLDEN, LTD., of 28, Tentercroft Street, Lincoln. Registered since 1898. Mr. Holden claims to be a doctor of dental surgery—'an American graduate in artificial teeth without plates.' Mr. Newton does not claim to possess any qualification. Their advertisements allude to the practice of English and American systems of tooth-crowns, stoppings, and painless extractions.

2. NEW YORK AND LONDON DENTAL PARLOURS, LTD., of 1, Oxford Street, W., so described on their windows and in the Post Office London Directory, but possibly they are registered in Great Britain as the New York Dentists, Ltd. There is a company of that name—viz., the New York Dentists, Ltd.—in the Irish section of Sir John Tuke's Parliamentary Return, but they are practising at Cork.

3. MESSRS. DENTS, LTD., of 432, Strand and Woolwich. Advertise the practice of English and American systems.

4. BEWELLS, LTD., of 19 and 21, Pitfield Street, N. They describe themselves as Cash Chemists, but also advertise an instalment system to supply sets of teeth, satisfaction being guaranteed.

5. MARIO McNALLY AND CO., LTD., of 196, Great Brunswick Street, Dublin. Registered since Sir John Tuke obtained his Return, and among the purposes of the company is to practise the art of dentistry in all branches.

This letter was acknowledged on February 4, 1905.

Sir JOHN BATTY TUKE informed the President that the following communications had been received and correspondence taken place with various Government Departments :

(a)

BOARD OF TRADE,  
WHITEHALL GARDENS, S.W.,  
*January 11, 1905.*

MY DEAR SIR,—With reference to your letter forwarding a copy of the Report of the General Medical Council on the registration of Medical and Dental Companies, I regret that after very careful consideration I am unable to suggest anything better for you to do than to introduce a Bill, which the General Medical Council might prepare, with the object of amending the existing law.

Yours very truly,  
A. BONAR LAW.

Sir John Batty Tuke, M.D., LL.D., M.P.,  
Balgreen, Gorgie, Edinburgh.

(b)

BALGREEN, GORGIE, EDINBURGH.

*February 11, 1905.*

DEAR MR. BONAR LAW,—I was much disappointed that in your late communication to me regarding the abuses of the Companies Act in respect of the practice of medicine and dentistry by unqualified persons you could not promise to do anything to abate the grievances. I was even more disappointed when I saw in the papers that the Board of Trade had issued a Commission, or Committee, to inquire into abuses of the Act in other directions. The reference did not allude to the grievances pointed out to you by me.

I write to ask you to grant me an interview at any early date. I shall be in the House every day for the next fortnight.

I am, yours faithfully,  
JOHN BATTY TUKE.

(c)

HOUSE OF COMMONS,

*February 23, 1905.*

DEAR SIR ROBERT REID,—I address you as Chairman of the Committee appointed to consider what amendments are necessary in the Acts relating to Joint Stock Companies. The Committee is asked to consider specially the growing practice of registering companies without prospectuses.

I beg to draw your attention to the case of certain companies registered for the purpose of carrying on medical and dental practice. The registration of such companies constitutes an evasion of the Medical Acts and the Dentists Acts, and legalizes a fraud on the public. I have ascertained that certain of these companies have been registered without prospectuses. My contention is that the registration of such companies without the issue of prospectuses renders it all the more easy to effect a fraud on the public, and that, until a change in the law is brought about forbidding companies

being registered for the purpose of carrying on medical and dental practice, such companies should be compelled to issue prospectuses.

If your Committee is of opinion that the position as above stated comes within the reference, I shall be glad to give evidence on the subject.

I am, etc.

JOHN BATTY TUKE.

(d)

HOME OFFICE,  
WHITEHALL, S.W.,

March 3.

DEAR SIR,—I write to you, by Mr. Akers Douglas's desire, with reference to my letter to you of the 25th, on the subject of Medical Companies, which I understand you think of publishing.

Mr. Akers Douglas would prefer, if you do not mind, that the letter should *not* be published, for the following reason: that I said in it that he could not undertake legislation *at any rate in this Session*, which would convey the impression that at some other time he might possibly do so.

The phrase was used because your proposal was one of importance, and certainly not one to be lightly dismissed; but I have since, on looking further into the matter, discovered that the Home Secretary does not initiate or supervise legislation of this kind, and that it would be misleading to give the idea that he might do so at some future date.

Legislation to effect the purpose you have in view would have to take the form of an amendment of the Medical Acts, or of the Pharmacy Acts, and both of these are within the province of the Privy Council Office. Were the matter to be taken up by the Government, the Privy Council Office would, therefore, be in charge of the Bill.

The only possible alternative would, I suppose, be an amendment of the Companies Acts. That would fall to the Lord Chancellor and the Law Officers.

I am, yours very truly,

L. M. WALLER.

Sir John Batty Tuke, M.P.

The following letter was also received by Sir John Tuke from the Chairman of a Departmental Committee of the Board of Trade, sitting to consider the operation of certain sections of the Companies Acts:

HOUSE OF COMMONS,

April 6, 1905.

DEAR SIR JOHN TUKE,—Your letter drawing attention to the Medical and Dental Companies which have been registered under the Companies Acts, and expressing the opinion that the registration of such companies was an evasion of the law, was considered by the Committee. They came to the conclusion that the matter was one which could not properly be dealt with in a Companies Bill, and that it was therefore outside the scope of their inquiry.

I am, yours faithfully,

R. REID.

On February 24, 1905, the Secretary of the British Dental Association supplied the President with a Report of the following proceedings that had taken place in the Chancery Division of the High Court of Justice in Ireland before the Master of the Rolls.

ATTORNEY-GENERAL *v.* APPLETON AND OTHERS.

This is fully set forth in thirteen pages of the appendix, as previously published in the BRITISH DENTAL JOURNAL.

After quoting the Parliamentary questions by Sir John Tuke in the House of Commons on the matters raised by the decision in this case, as we have already reported, the appendix continues :

On March 13, 1905, the British Dental Association informed the President that, in regard to a petition presented to Mr. Gerald Balfour by the Leeds and District Section of the North Midland Branch of the British Dental Association, the following answers had been received :

*Copy of Mr. Balfour's Letter.*

BOARD OF TRADE,  
WHITEHALL GARDENS, S.W.

May 16, 1904.

DEAR SIR,—I have carefully considered your letters of the 7th and 13th instants regarding the legal position of dental companies.

The question has assumed a somewhat different shape since the clause to which you refer was inserted in the Companies Bill of 1900. At that time it was understood that as a dentist company was not a 'person' within the meaning of the Dentists Act, 1878, there was nothing in that Act which could be held to afford grounds for a refusal to register under the Companies Act.

In a recent case, however, where, owing to the difficulty of ascertaining the precise bearing of the Acts on the particular circumstances, the registration of a dentist company had been delayed for some time, an application was made for a mandamus to the Registrar ordering him to register the company, and in the result the Divisional Court in Dublin held that the use of the word 'dentist' in the title of the company would have amounted to a false statement, and rejected the application accordingly.

This judgment was delivered on the 29th of last month, and it was preceded on the 18th by a judgment of the King's Bench Division in England to the effect that a dentist company carrying on business by



persons not qualified under the Act of 1878 was not entitled to recover fees in respect of specifically dental operations.

These judgments would seem to place a somewhat different aspect on the position, and will require very careful consideration in connection with the suggested necessity of amending the law in its relation to dentist companies.

The matter is now under consideration, but until we have been advised upon the legal effect and bearing of the decisions referred to it would, I think, be useless to trouble a deputation to attend and discuss the question, though I should, of course, be glad to consider any arguments that you may wish to submit in writing.

I am,

Yours faithfully,

(Signed) G. W. BALFOUR.

Percival T. Leigh, Esq., *Hon. Sec.*,  
Leeds and District Section of the  
British Dental Association,  
6, Portland Crescent, Leeds.

*Copy of Further Letter from Mr. Balfour.*

BOARD OF TRADE,

WHITEHALL GARDENS, S.W.,

June 21, 1904.

DEAR SIR,—I have to thank you for your further letter of the 9th instant, enclosing a petition signed by members of my constituency in favour of a Bill to prohibit dental practice by companies, and to say that the representations now submitted will have my careful consideration.

As you are aware, we are being advised upon the legal effect and bearing of the recent decisions as affecting the practice in regard to the registration of dentist companies.

I am,

Yours faithfully,

(Signed) G. W. BALFOUR.

Percival T. Leigh, Esq., *Hon. Sec.*,  
Leeds and District Section of the  
British Dental Association,  
6, Portland Crescent, Leeds.

*Copy of Mr. Balfour's Answer.*

January 19, 1905.

DEAR SIR,—The petition which you sent me last June, signed by a large number of members of my constituency, asking me to bring in a Bill embodying the clause withdrawn from the Companies Bill of 1900, has had my careful attention.

The clause in question (Clause 3) was, as you point out, dropped out of the Companies Bill on the ground that it was not germane to the subject, or, to put it in another way, because it was in effect an amendment of the Medical or Dentists Acts, and not really related to the Acts governing joint-stock companies.

I have considered the question fully since I wrote to you in May



last, and I have come to the conclusion that the reasons which obtained in 1900 for dropping the clause in question still hold good, and that I could not myself undertake to introduce a Bill such as you suggest, which would, I am advised, be outside the province of the Board of Trade.

I am,

Yours faithfully,

(Signed) G. W. BALFOUR.

I think it would be well if the General Medical Council were to take steps to secure the introduction of a Bill next session by a private member.

Subsequently, on April 8, 1905, the following further communication was received from the Privy Council :

PRIVY COUNCIL OFFICE,

*April 8, 1905.*

SIR,—Referring to your letter of February 3 last and previous correspondence on the subject of the registration of dentists companies, I am directed by the Lords of the Council to state, for the information of the General Medical Council, that their Lordships have been advised that if the title of a company which seeks registration contains the word 'dentists,' or any expression calculated to mislead the public into supposing that the company is specially qualified for the practice of dentistry, then registration should be refused, even if one or more of the signatories to the Memorandum of Association are persons duly qualified to practise dentistry. On the other hand, if the title of the proposed company is not misleading, then registration should be allowed, although the company is formed for carrying on the business of a dentist. Should, however, the company, subsequent to registration, advertise itself as 'dentist' or 'dental surgeons,' the question whether any liability is thereby incurred must depend upon the interpretation ultimately placed upon the Dentists Act, 1878.

I am to add that the Registrars of Joint Stock Companies in England, Scotland, and Ireland have been informed of this opinion.

I am, sir,

Your obedient servant,

A. W. FITZ ROY.

The Registrar, General Medical Council,  
299, Oxford Street, W.

To this letter, by the President's direction, the following answer has been sent :

No. 15,153.

*May 17, 1905.*

SIR,—I am directed by the President of the General Medical Council to acknowledge and thank you for your letter of April 8 last, with regard to the registration of companies whose titles include the word 'dentists' or other expression calculated to mislead the public into supposing that the company is specially qualified for the practice of dentistry.

I am instructed to call your attention to the decision of the Master

of the Rolls in Ireland in the case of the Attorney-General for Ireland *v.* Appleton and others. In that case the company had been registered under the title of 'Mr. Appleton, Surgeon-Dentist, Limited,' by persons who were not qualified dentists, and the Master of the Rolls held that the Attorney-General was entitled to obtain an injunction in the interests of the public by proceedings taken by way of information, and he granted an injunction against the defendants.

In view of the importance of protecting the public, not only by preventing the registration in future of companies with misleading titles, but by guarding them against being misled by companies already registered, the General Medical Council would urge the importance of similar action being taken in the courts in this country, and I am therefore instructed to inquire whether the Attorney-General for England would take similar proceedings here at the instance of a proper relator.

The Irish case does not appear to have been yet reported, but I enclose for your information a print of the shorthand notes taken for the Irish Branch of the British Dental Association, the Hon. Secretary of which was the relator in the case.

I am, sir, your obedient servant,

H. E. ALLEN,

Registrar.

The Clerk of the Council, Privy Council Office.

The following answer has now been received :

PRIVY COUNCIL OFFICE,

May 19, 1905.

SIR,—Referring to your letter of the 17th instant on the subject of the registration of medical and dental companies, and inquiring whether, in view of the decision of the Master of the Rolls in Ireland in the case of the Attorney-General for Ireland *v.* Appleton and others, the Attorney-General for England would take similar proceedings in the courts here at the instance of a proper relator, I am directed by the Lords of the Council to state, for the information of the General Medical Council, that it appears to their Lordships that if a case of a like nature to that above cited arose in this country, it would be open to the English Branch of the British Dental Association to move in the matter as apparently the Branch in Ireland has done.

I am, etc.,

(Signed) A. W. FITZ ROY.

The Registrar, etc.

It was resolved : 'That these additional documents be referred to the Companies Bill Committee of the Council for its information.'

#### PENAL CASE.

On Thursday, May 25, the case of Mr. William Jones, a registered dentist, of Liverpool, came before the Council, DR. MACALISTER presiding.

It appeared that the matter had come before the Dental Committee of the Council on May 22, when the evidence consisted of: (a) Advertisements by William Jones in two pamphlets issued and circulated by him in two editions. 'The Incorporated Trade Protection Society Circular,' November 3, 1904; 'Torrey-Alexander Mission Record,' November 10, 1905; 'The Porcupine,' February 4, 1905; a handbill headed 'Anodynol,' produced by the said William Jones; and other publications admitted by him. (b) A Statutory Declaration of Thomas Woods, of 76, Bradford Street, Bolton, private inquiry agent, and two exhibits thereto, being the earlier edition of the two above-mentioned pamphlets. (c) The statements and admissions of William Jones, made before the Committee.

The Committee found the following facts to be established: That William Jones was registered in the Dentists' Register on November 28, 1878, as in practice before July 22, 1878, his address being The Arcade, 85, Lord Street, Liverpool. That being a registered dentist he had sought to attract business by systems of extensive public advertisements of an objectionable character, containing his name, address, and qualifications, praising his own professional skill and preparations, instituting comparisons between his own work and that of other practitioners, and claiming superiority over other practitioners and depreciating their work. That he had personally and in a letter to the Solicitor to the Council, dated May 19, 1905, undertaken not to advertise in such a way as to praise his own professional skill and preparations, nor to institute comparisons between his own work and that of other practitioners, nor to depreciate their work, nor to claim superiority over them, nor to issue any advertisement containing his photograph.

Mr. Jones attended in answer to his notice, accompanied by Mr. Hugo Young, K.C., his counsel, instructed by Messrs. Style, Lindsay and Squarey, Solicitors, of Liverpool, and accompanied by Mr. Barham, of Messrs. Sharpe, Parker and Co., of New Court, W.C., their London agents.

Mr. R. W. Turner appeared on behalf of the British Dental Association, the complainants, instructed by Messrs. Bowman and Curtis-Hayward, Solicitors, and accompanied by Mr. Curtis-Hayward, jun.

The PRESIDENT informed Mr. Hugo Young that he could address the Council as to the judgment passed upon the facts found.

Mr. HUGO YOUNG said he did not desire to dispute the facts as found by the Committee, but he ventured to submit to the Council that the extreme measure of striking Mr. Jones off the list of registered dentists would be a somewhat unnecessary and hard punishment for what he had done. He had inadvertently, no doubt, published advertisements which were found to be of an objectionable character, and at the hearing before the Committee he had undertaken absolutely to modify those advertisements in any way which might be thought desirable. If Mr. Jones had erred, he had erred through inadvertence entirely. He had done nothing maliciously, and he had not desired in any way to set himself up in defiance to the wishes of the Council. Even prior to the hearing before the Committee, Mr. Jones had issued an edition of his pamphlet which omitted many of the paragraphs objected to. What he (Mr. Young)

desired to urge before the Council was that, though those advertisements were objectionable as found by the Committee, they might chiefly be characterized as objectionable because wanting in good taste, as distinguished from being advertisements which were, in any sense of the word, within the meaning of the Act of Parliament—'disgraceful or infamous.' For a mere error of judgment, and mere want of taste, he submitted that some correction less than the actual striking of Mr. Jones's name off the Register would meet the justice of the case. On behalf of Mr. Jones he asked for the merciful consideration of the Council, and would suggest that they gave him a period of time in which he might so far modify his advertisements as to bring himself into line with the wishes of the Council. He did not know whether the Council could suspend their judgment in the case, but he hoped something of that sort could be done, as Mr. Jones desired to remain a registered practitioner. If Mr. Jones were struck off the Register, he would not be disentitled to practise, although he would not be able to describe himself as a registered dentist. But Mr. Jones desired to retain his position on the Register, and he (Mr. Young) submitted that some such course as he had suggested would certainly be merciful to Mr. Jones, and he would ask that mercy and consideration at the hands of the Council.

Mr. R. W. TURNER pointed out that the case was one of a person who was on the Register, and who wished at one and the same time to be both a tradesman and a professional man, and who now came before the Council and said: 'I desire to amend my advertisements; I am going to issue amended advertisements, and after a period of probation, if I am not struck off the Register, it will show that the Council recognises advertising.' It had been argued by Mr. Hugo Young on the present, and by others on other occasions, that the Council, by the resolutions it had passed, recognised the right, if he might so call it, of a man to advertise; but that to his (Mr. Turner's) mind was entirely contrary to any professional decency or etiquette, and as such was disgraceful in a professional respect. It was, of course, entirely for the Council to say whether or not they would, as they had in some cases, adjourn the case for six months; but if that were done he submitted it must be done in such a way as to show Mr. Jones and others that the Council did not recognise in any shape or form what some people called their 'right' to advertise. A man who was on the Register was a professional man, but he had his own remedy. If he wanted to be a tradesman he must strike himself off the Register; he could not have his cake and eat it.

Strangers having, by direction of the Council, withdrawn, the Council deliberated on the case *in camera*.

On their readmission, the PRESIDENT announced that on the facts found in the Report of the Dental Committee it had been proved that William Jones had been guilty of conduct which was infamous or disgraceful in a professional respect; and the Registrar was directed to erase his name from the Dentists' Register.

MEETING OF MAY 26, 1905.

(20) Moved by Mr. TOMES, seconded by Mr. BROWN, and agreed to:

'That the Report from the Dental Education and Examination

Committee be received and entered on the Minutes, subject to any verbal corrections that may be necessary in the text.'

\* \* This Report as corrected forms Appendix IV. to this day's Minutes.

(21) Moved by Mr. TOMES, seconded by Dr. BENNETT, and agreed to:

'That Recommendation (i.) in the Report of the Dental Education and Examination Committee be adopted, viz.:

"(i.) That the Registrar be instructed to accept for the purposes of registration upon the Dentists' Register the License in Dental Science of the University of Dublin, and the License in Dental Surgery of the Victoria University of Manchester (Dentists Act, Sec. 6 [a]).'"

(22) Moved by Mr. TOMES, seconded by Dr. LINDSAY STEVEN, and agreed to:

'That Recommendation (ii.) in the Report of the Dental Education and Examination Committee be adopted, viz.:

"(ii.) That the Degrees in Dental Science and in Dental Surgery granted by the same Universities be recognised for entry upon the Dentists' Register as 'additional diplomas, memberships, licenses . . . granted in respect of a higher degree of knowledge' (Dentists Act, Sec. 11 [6]).'"

(23) Moved by Mr. TOMES, seconded by Dr. LINDSAY STEVEN, and agreed to:

'That Recommendation (iii.) in the Report of the Dental Education and Examination Committee be adopted, viz.:

"(iii.) That Inspection and Visitation in the ordinary sense being at present impracticable, the offer of the Dental Board of Victoria, Australia, to submit candidates' papers, marks, and returns generally to the Registrar be accepted.'"'

(24) Moved by Mr. BROWN, seconded by Mr. JACKSON, and agreed to:

'That the President be authorized to take the opinion of the Legal Advisers of the Council as to whether Degrees granted in Dental Science and Dental Surgery by Universities in the United Kingdom are registrable as primary qualifications to practise dentistry.'

## APPENDIX I.

### REPORT BY THE FINANCE COMMITTEE ON INCOME AND EXPENDITURE FOR THE YEAR 1904, AND COMPARISON WITH FORMER YEARS.

*Members:* Dr. Pye-Smith (Chairman), Mr. Tomes, Sir Patrick Heron Watson, Dr. Bennett.

The Finance Committee have to report that the

Income of the General and Branch Councils	£	s.	d.
for the year ending Decembar 31, 1904, was ...	8,062	0	6
The Expenditure for the same period was ...	8,280	0	7

Consequently there is a deficit on the year's

working of ...	...	...	...	...	...	218	0	1
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Although there was a deficit, the Committee cannot but regard with satisfaction the fact that it compares so favourably with that of



last year (£2,165 1s. 8d.). Indeed, with the exception of the year 1898, in which the Pharmacopœia was published and the receipts thereby abnormally increased, this is the first time since 1895 that the deficit has not exceeded £1,000.

TABLE E.

A COMPARATIVE STATEMENT of the ASSETS, after deduction of LIABILITIES, of the THREE BRANCH COUNCILS and the DENTAL FUND, on December 31, 1902, 1903, and 1904 respectively.

	1902.			1903.			1904.			Alterations from 1903.		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
ENGLISH BRANCH COUNCIL ...	33,749	9	5	32,545	2	6	32,494	17	1	-50	5	5
SCOTTISH BRANCH COUNCIL ...	4,802	7	11	4,139	9	6	4,091	8	3	-48	1	3
IRISH BRANCH COUNCIL ...	78	14	9	80	18	5	111	5	0	+30	6	7
Total Assets of Branches ...	38,630	12	1	36,765	10	5	36,697	10	4	-68	0	1
DENTAL FUND ...	8,461	8	10	8,546	3	4	8,982	2	5	+435	19	1
Total Assets ...	47,092	0	11	45,311	13	9	45,679	12	9	+367	19	0

Consols have been valued at about 90. See Body of Report.

## APPENDIX II.

REPORT BY THE DENTAL EDUCATION AND EXAMINATION COMMITTEE ON CERTAIN APPLICATIONS FOR THE RECOGNITION OF LICENSES AND DEGREES IN DENTISTRY OF CERTAIN UNIVERSITIES IN THE UNITED KINGDOM AND ON A COMMUNICATION FROM THE DENTAL BOARD OF VICTORIA, AUSTRALIA.

*Members.*—Mr. Tomes (Chairman), Mr. Morris, Dr. Finlay, Mr. Brown, Dr. Lindsay Steven, Dr. Bennett.

A communication has been received from the University of Dublin (Trinity College) notifying the General Medical Council of the establishment of a degree in Dental Science, as well as of a Licentiatehip in Dental Science; and a similar communication has been received from the Victoria University of Manchester. In both cases it is asked that steps should be taken to render these degrees and diplomas registrable upon the Dentists' Register. It will be noticed that these Universities have not followed the precedent set by the University of Birmingham, which grants its degree only to



persons already qualified and upon the Register, but that they both propose to grant primary qualifications admitting to the Register, as well as a higher 'degree,' which latter may apparently be taken in the first instance.

#### UNIVERSITY OF DUBLIN.

##### *License in Dental Science.*

It is not proposed to throw open this examination to students who have wholly or in part studied elsewhere, except in the case of qualified persons or others who may desire recognition of courses taken previous to the establishment of the degree or license. The public entrance examination in Trinity College must be passed, and a curriculum extending over four years is prescribed, which is to be taken out at the Medical School of the University and at the Dental Hospital with the exception of Dental Mechanics, which may be learnt either at the Dental Hospital or from a registered dentist. In the first year the student attends lectures on Anatomy, Chemistry, and Physics, and dissects. During the second he attends clinical instruction at a general hospital, lectures on Physiology, Surgery, and dissects. He also attends lectures on Histology and Dental Microscopy, and should pass his previous Dental Examination at the end of his second year. This examination embraces Anatomy, Physiology and Histology, Physics, Chemistry, Metallurgy, and Materia Medica. Having passed the previous Dental Examination, he should join the Dental Hospital and attend the classes and lectures given there, also attending lectures on medicine at the Dental Hospital.

In the fourth year he should attend the Dental Hospital.

The Final Examination embraces Medicine, Surgery, Dental Anatomy, Dental Surgery and Pathology, Dental Mechanics, Orthodontia.

Whilst the amount of study required of the student shows a general correspondence with that prescribed by other bodies it is somewhat differently distributed in that the attendance at a general hospital and the taking out of lectures on general subjects (with the exception of lectures on medicine) precede attendance at the special hospital and at lectures on the special subjects. That is, of course, the logical sequence—namely, that the student should receive a general grounding before proceeding to specialize—and it will be interesting to observe how it works in practice. The only fear is lest the student at this early period may not be in a position to grasp the opportunities offered to him, for the necessities of the case bring it about that he must attend to clinical instruction at a period when the ordinary medical student is not doing so; and, further, he is not examined in medicine and surgery till two years or thereabouts after his attendance on these subjects has ceased. There are only two examinations—Physics and Chemistry being included in the first, which results in its embracing a very considerable range of subjects. The student is, however, allowed to pass them in groups.

*Degree in Dental Science.*

This has the same curriculum as that for the license, with the addition of lectures on Pathology, Practical Pathology, and Bacteriology, which should be taken out in the fourth or fifth year. All candidates must have passed for the B.A. degree, and must have been students of the medical or Dental Schools for five years. The Previous Dental Examination is the same, but the Final Examination embraces the additional subjects of Pathology and Bacteriology. The possession of the degree (M. Dent. Sc. Univ. Dub.) may therefore be taken to imply a higher general culture.

## VICTORIA UNIVERSITY OF MANCHESTER.

*Diploma in Dentistry (L.D.S. Manc.).*

The preliminary Examination is to be such as is required by the General Medical Council for registration as a Dental student.

A curriculum of four years' duration subsequent to registration is required, and studies are divided into four courses, with examinations at the end of each.

The First Course embraces Chemistry and Physics, which may have been studied prior to registration and at any institution recognised for the purpose by the University.

The Second Course embraces Metallurgy and Dental Mechanics ; the latter may be studied at an approved Dental Hospital for two years subsequent to the date of registration, or by apprenticeship to a registered dentist, and the first examination must have been passed.

The Third Course and Examination embraces Anatomy, Physiology, and Dental Anatomy, and Physiology. These may be any courses recognised by the University.

The Fourth Course and Examination comprises Surgery, Operative Dentistry, and Dental Surgery, and Prosthetics. Clinical instruction at a general hospital must have extended over twelve months, and the practice of a recognised Dental Hospital over a period of two years.

It will be noticed that this scheme differs markedly from that of the Dublin University. No part of the instruction is required to be taken out at the Victoria University, so that the Examination for the Diploma is absolutely thrown open to candidates educated at recognised schools elsewhere.

There are four Examinations in the place of two ; and though it is not expressly so prescribed, the natural result of the arrangement will be that the attendance at a general hospital and upon the general subjects taught there will be taken in the fourth year.

*Degree of Bachelor of Dental Surgery.*

A period of five years of study is required subsequent to registration. The same Matriculation Examination as that required by the Faculty of Medicine must be passed.

The First Course and Examination differs from that required for the diploma in that Zoology is added ; and the period of instruction is twelve months instead of six, and must be taken in the University.

The Second Course and Examination differs little from that required for the diploma, but must be partly taken in the University; and the same applies to the Third Course and Examination, except that all must be taken at the University.

The Fourth Course can be taken out at other recognised schools or at the University, and embraces Surgery, Pathology, including Bacteriology, Clinical Medicine and Surgery, Dental Surgery and Pathology, three years of Dental Hospital practice, and an additional year of work in the mechanical laboratory of a recognised Dental Hospital, etc. Persons qualified before October, 1905, who have pursued their studies at Owens' College or at the University, may be allowed to obtain the degree of Bachelor of Dental Surgery after passing the Third and the Final Examinations without any additional study, a concession not beyond question in respect of a 'higher' degree. The degree of Master of Dental Surgery may be obtained either on presentation of a thesis or by examination on certain Dental subjects or groups of subjects as yet undetermined.

The degrees, therefore, are confined to those who have, to a considerable extent, at all events, studied in the University.

Special courses of lectures on the Surgery of the Mouth, on Dental Bacteriology, and on Dental Materia Medica are not represented in the curriculum for the license, though such courses are required, for example, by the Royal College of Surgeons of England for their license.

It appears to your Committee desirable that degrees 'in respect of a higher degree of knowledge' should be granted to those persons only who are already possessed of a registrable qualification, a course which appears to be indicated by the words used in Section 11 (6) of the Dentists Act.

#### DENTAL BOARD OF VICTORIA, AUSTRALIA.

A letter has been received from the Dental Board of Victoria expressing their gratification at the recognition of their diploma, and their cordial agreement with the conditions attached thereto. They ask for information as to the returns made to the General Medical Council by the licensing bodies of the United Kingdom, and fully recognise the necessity of some test of the sufficiency of their examinations, which, owing to distance, cannot be inspected like those of the licensing bodies at home. They offer, should the Council desire it, to retain for twelve months the examination papers, returns, etc., and to forward them to the Registrar. Powers of visitation of their examinations have already been granted to the University of Melbourne. They point out that a rigid application of the statistics as to the proportion of passes and rejections found to obtain at home might not be perfectly fair to a school as yet small, and at the moment possessed of an unusually competent body of students.

#### RECOMMENDATIONS.

(i.) That the Registrar be instructed to accept for the purposes of registration upon the Dentists' Register the License in Dental Science of the University of Dublin, and the License in Dental Surgery of the Victoria University of Manchester (Dentists Act, Sec. 6, a).

(ii.) That the degrees in dental science and in dental surgery granted by the same Universities be recognised for entry upon the Dentists' Register as 'additional diplomas, memberships, licenses . . . granted in respect of a higher degree of knowledge' (Dentists Act, Sec. 11, 6).

(iii.) That inspection and visitation, in the ordinary sense, being at present impracticable, the offer of the Dental Board of Victoria (Australia) to submit candidates' papers, marks, and returns generally to the Registrar be accepted.

CHARLES S. TOMES,  
*Chairman.*

May 25, 1905.

### APPENDIX III.

THE DENTAL BOARD OF VICTORIA,  
MELBOURNE, *February 20, 1905.*

SIR,—I have the honour to acknowledge receipt of yours, No. 14,720, dated December 1, 1904, and to express the great satisfaction with which the Dental Board of Victoria has received the news that its license has been recognised by the General Council of Medical Education and Registration of the United Kingdom, subject to three conditions therein specified, to which qualifications my Board cordially agrees. It will be the constant endeavour of the Board to maintain the Imperial recognition which it has thus received.

As regards qualification iii., my Board desires to obtain from you the fullest evidence (with illustrations) of what are 'the complete returns of all their examinations' that the licensing bodies in the United Kingdom actually furnish from time to time.

In reference to the final paragraph in the report of the Dental Education and Examination Committee, as given on p. 13 of the *Australian Journal of Dentistry*, herewith enclosed, the Board recognises the necessity of some satisfactory test of the sufficiency of its examinations at the hands of the Imperial authority, and regrets that the distance is considered to render personal inspection an impossibility. It is naturally anxious to facilitate such test in every way possible, and has already granted powers of visitation to the Council of the University of Melbourne. It is prepared also, if the General Medical Council so desire, to retain all examination papers, returns, etc., for twelve months, and forward them to you as its Registrar. The Board also asks to be furnished with the detailed statistical experience of the proportion of passes and rejections that has obtained during the past twenty-five years at the examinations of the several licensing bodies of Great Britain. But whilst agreeing that, as a general rule, it would be fair to expect no great difference therefrom in a similar period here, and even in more limited periods under similar conditions, it recognises the possibility of such a comparison, if entirely relied upon, proving somewhat unfair to our small and vigorous school with a matriculation standard at entry, and, so far, an unusually competent body of students. It hopes, therefore, that over and above such statistical comparisons some scheme of visitation will be gradually evolved, and it would suggest that some arrangement might perhaps be made by the General

Medical Council, with the Council of the University of Melbourne, which, as already stated, has such powers conferred upon it by the Dental Board of Victoria.

Again expressing the local gratification with which the high honour of registration has been received by all concerned in Victoria,

I beg to remain,

Your most obedient and humble servant,

J. W. SPRINGTHORPE, M.A., M.D.,

*President of the Dental Board of Victoria.*

H. E. Allen, Esq., B.A., *Registrar,*

General Council of Medical Education and

Registration of the United Kingdom,

229, Oxford Street, London, W., England.

#### APPENDIX IV.

##### STUDENTS' REGISTRATION COMMITTEE.

##### *Dental Business.*

(1) From the following students, who desired to antedate their commencement of professional study, their preliminary examinations having been fully completed before they commenced :

Name.	Date of Preliminary Examination.	Date of Commencement of Professional Study.	Date of Registration.	Date to which Student desired to be antedated.
Brewster, Arthur ...	Sept., 1904	Sept. 1, 1904	Feb. 10, 1905	Sept. 1, 1904
Edwards, Douglas L. P. ...	Oct., 1903	Oct. 15, 1903	May 8, 1905	Oct. 15, 1903
Ferguson, Philip ...	June, 1901	Oct. 1, 1901	May 12, 1905	Oct. 1, 1901
Ferguson, Thomas B. ...	Sept., 1903	Mar. 1, 1901	Feb. 25, 1905	Sept. 1, 1903
Hughes, George T. D. ...	Mar., 1905	Jan. 1, 1901	Apr. 14, 1905	Mar. 1, 1905
Hutchinson, Henry	Nov. 5, 1904	Nov. 9, 1904	May 16, 1905	Nov. 9, 1904
Iliffe, Oliver G. ...	Dec., 1904	Dec. 18, 1895	Oct. 17, 1901	Dec. 18, 1895
James, William A.	July, 1893	Oct. 1, 1903	Mar. 1, 1905	Oct. 1, 1903
Tibbalds, William E. A. ...	Dec., 1904	Oct. 1, 1896	Jan. 30, 1905	Dec. 1, 1904
Ward-Booth, William R.	June, 1893	Sept. 9, 1890	Apr. 19, 1905	June 1, 1893

Resolved : 'That these applications be acceded to.'

(2) An application to be registered without further preliminary examination :

From Marie I. Moens, a qualified dentist from Holland, who, in August, 1901, had gained a Higher Burgher's School-leaving Certificate, which included all the subjects required by the Council



except Latin, and which exempted her from the entrance examinations of any of the Dutch Universities.

Resolved: 'That Miss Moens be allowed to register on passing in Latin at one of the examinations recognised by the Council.'

HUGH R. BEEVOR, *Chairman*.

May 26, 1905.

*Minutes of Meeting, Saturday, May 27, 1905.*

Dr. MACALISTER, President, in the chair.

(1) Moved by Dr. WINDLE, seconded by Dr. NORMAN MOORE, and agreed to:

'That the following be the members of the Dental Committee: The President (*Chairman*), Mr. Morris, Mr. Tomes, Sir Patrick Heron Watson, Sir Thomas Myles.'

(2) Moved by Dr. WINDLE, seconded by Dr. NORMAN MOORE, and agreed to:

'That the following be the members of the Dental Education and Examination Committee: Mr. Tomes (*Chairman*), Mr. Morris, Dr. Finlay, Mr. Brown, Dr. Bennett, Dr. Lindsay Steven, Sir Thomas Myles.'

The Council subsequently adjourned.

*Tuesday, November 28, 1905.*

Dr. MACALISTER, President, in the chair.

In the course of his Presidential Address at the opening of the Eighty-second Session of the General Medical Council, on Tuesday, November 28, Dr. MACALISTER made the following remarks, of special interest to dental practitioners:

'I have already reported to the Council that Sir John Batty-Tuke, during the last session of Parliament, endeavoured to secure that the question of the unqualified practice of medicine and of dental surgery by certain limited companies should be inquired into by a Departmental Committee then sitting, to consider the working of the Companies Acts. His efforts were unsuccessful, as it was officially affirmed that the question lay outside the scope of the Committee's reference. Undeterred by this refusal, he decided to introduce, in his own name, the two Bills on the subject which were drafted by Mr. Muir Mackenzie and submitted by direction of the Council to the Lord Chancellor. The purpose of the Bills may be briefly described thus: That any practice which, under the Medical and Dentists Acts, is unlawful when carried on by a person, shall be declared unlawful when carried on by a limited company. The Bills were ordered by the House to be printed on June 26, and Sir John Batty-Tuke sought to have them referred for consideration to the above-mentioned Committee; but he was unable to bring this about before the prorogation of the House in August. Some advantage was, however, gained by the publication of the Bills, and the Companies Bills Committee will doubtless be prepared to consider them afresh, in the light of experience and of criticism, should a favourable opportunity occur for pressing them once more on the attention of the Government.



'Steps have been taken by the British Dental Association to obtain in England a declaration of the law respecting dental companies similar to that which has already been procured in Ireland. In two instances the Attorney-General has, on the relation of the Association, granted his fiat for proceedings against registered companies which were held to be unlawful. In each case, however, the company anticipated matters by dissolving, and the proceedings accordingly came to an end before they reached the stage of trial. I am informed that the Association may be expected to continue its public-spirited efforts in this direction. They concern the interest of the public no less than that of the dental profession, and are worthy of our appreciative recognition.'

Later in the afternoon the following opinion was read to the Council in regard to a resolution passed on May 26, 1905, authorizing the President to take the opinion of the legal advisers of the Council as to whether degrees granted in dental science and dental surgery by Universities in the United Kingdom are registrable as primary qualifications to practise dentistry :

For Council's opinion in full and the decision of the Medical Council, *see Degrees.*

It was subsequently agreed, on the motion of Dr. NORMAN MOORE, that the following report by the Executive Committee, on the dental business transacted since the last session of the Council, be received and entered in the minutes :

*Report.*

The prescribed conditions having been duly fulfilled in each case, the names of the undermentioned persons have been restored to the Dentists' Register, from which they had been erased in conformity with the provisions of Section 12 of the Dentists Act, 1878 : Emilie H. Chapman, Horatio R. Miller, Charles W. Morrey, William Parker.

DONALD MACALISTER, *President.*

*November 27, 1905.*

*Friday, December 1, 1905.*

Dr. MACALISTER, President, in the chair.

The first item on the programme of business for Friday, December 1, was the consideration of the Report of the Dental Committee on the charge against John Jones Atwood, Thomas Rose Smart, Walter Bennett, Algernon Frederick Green, Montagu Alex. Levason, Daniel Shea, and George Blount, in regard to whom the Dental Committee found the following facts :

*Report.*

The complaint against the above-named persons having been referred to the Dental Committee to ascertain the facts, the Dental Committee beg to report as follows :

On November 29 and 30, 1905, the inquiry was held. Neither Mr. Smart nor Mr. Levason appeared personally or by a representative. Mr. Atwood appeared, and was represented by counsel and

solicitor. Mr. Bennett, Mr. Green, Mr. Shea, and Mr. Blount appeared in person.

The Dental Committee was satisfied that notice of the inquiry was duly sent to Mr. Smart and Mr. Levason, as prescribed by the standing orders.

The Committee find that the following facts were established by the evidence :

(a) The seven persons above mentioned are all on the Dentists' Register as in practice before July 22, 1878, and their addresses in the Register are as follows :

John Jones Atwood, 215, Piccadilly, London, W.

Thomas Rose Smart, 15, Brownhill Road, Catford, London, S.E.

Walter Bennett, 20, South Side, Clapham Common, London, S.W.

Algernon Frederick Green, 42, Bloemfontein Road, Shepherd's Bush, London, S.W.

Montagu Alex. Levason, 3, Charteris Road, Glengall Road, Kilburn, N.W.

Daniel Shea, 9, Charles Street, Knightsbridge, London, S.W.

George Blount, 51A, High Street, Camden Town, London, N.W.

(b) The seven dentists above mentioned signed the Memorandum and Articles of Association, and thereby became members of a limited company incorporated under the Companies Act for the purpose (*inter alia*) of entering into an agreement, dated March 6, 1905, and made between the above-named George Blount (in the said agreement described as trading as G. Guy White and Co.), of 51A, High Street, Camden Town, surgeon dentist, of the one part, and William Price, as trustee of the company, of the other part, for the transfer of the business carried on under the style of G. Guy White and Co., artificial teeth manufacturers, of 215, Piccadilly, London, W., together with the goodwill, trade-marks, artificial teeth models, stock in trade, and book debts appertaining thereto, and to carry on the said business; and also for the purpose of establishing a system by means of which the great bulk of the industrial poor might be supplied with artificial teeth by periodical payments, and to contract with municipal and parochial institutions for the examination of the teeth of school-children, and to provide artificial teeth at a uniform contract price within the means of the industrial community.

(c) The nominal capital of the company was £1,000, divided into 1,000 shares of £1 each. One of these shares was taken by each of the above-named seven dentists.

(d) The only other persons who appear to be shareholders are G. Guy White and F. Sinclair Kennedy, who were on May 2, 1904, convicted at the Marlborough Street Police-Court for infringement of the Dentists Act, 1878, and were each fined £5 and £5 5s. costs on proof that they, being unqualified and unregistered persons, had carried on business at 215, Piccadilly, under the style of G. Guy White and Co., and had used the title of dentists and surgeon dentists.

(e) The said F. Sinclair Kennedy has acted as manager or managing director, and the said G. Guy White has acted as a director of the said limited company since its formation. The said

George Blount has also acted throughout as a director, and has attended meetings of the board, and taken an active part in the affairs of the company.

(f) The said A. F. Green held an appointment under the company, and attended at 215, Piccadilly, where he attended patients and performed dental operations, and he handed to the witness Foley the objectionable circular of the company hereinafter referred to.

(g) The said J. J. Atwood, Walter Bennett and D. Shea, have taken no part in the affairs of the company beyond attending on one occasion at 215, Piccadilly, when they signed the Memorandum and Articles of Association, and all or some of them received one guinea on so doing. They have not paid for the shares taken by them, nor have they received any dividend. They have, however, continued shareholders up to the present time, with the possible exception of D. Shea.

(h) The said J. J. Atwood, W. Bennett and D. Shea acted throughout in ignorance of the facts above set forth as to G. Guy White and Co., and as to the said G. Guy White and Sinclair Kennedy, and that they knew nothing of the facts hereinafter set forth.

(i) Thomas R. Smart and M. A. Levason did not appear, but letters written by them were before the Committee which disclaimed any connection with or knowledge of the company or its affairs, other than that admitted by Messrs. Atwood, Bennett, and Shea, and there was no evidence before the Committee contradicting this, or showing their knowledge of the facts above set forth as to G. Guy White and Co., or the said G. Guy White or S. Kennedy, or of the facts hereinafter set forth.

(j) The said limited company has issued a circular of an objectionable character containing untrue statements, namely, the circular exhibited to the statutory declaration of Ada Florence Foley.

(k) The said limited company is associated for the purpose of obtaining business with a society named the Benevolent Dental Society of Great Britain, which systematically and extensively issues advertisements of an objectionable character. This society is advertised as founded to supply free teeth in all deserving cases. The secretary, a Mr. Edwin Drew, is in the habit of referring applicants to G. Guy White and Co., Ltd., and that company then writes to the applicants, offering to supply them with teeth at a reduced charge. Mr. Edwin Drew was in the habit of attending the meetings of the directors of G. Guy White and Co., Ltd., and payments were regularly made to him by the company for commission on business introduced by him.

(l) The evidence before the Committee consisted of the following :

(1) Statutory declarations by the following persons :

(a) Mr. George Sidney Paternoster, dated November 10, 1905, exhibiting an advertisement of the Benevolent Dental Society of Great Britain, a letter dated April 30, 1905, from Edwin Drew, the secretary of the said society, and a letter dated May 5, 1905, from G. Guy White and Co., Ltd., both letters addressed to a Mr. R. Healy, and a copy of a journal called *Amusements*, for April-May, 1905, containing an advertisement and report of the said society.

(b) Mr. Harry Pyle, dated November 8, 1905, exhibiting a letter dated April 28, 1905, from the secretary of the said society, and another dated May 2, 1905, from G. Guy White and Co., Ltd., both addressed to himself.

(c) Mr. James Oscar Palm, dated November 7, 1905, exhibiting an advertisement of the said society in *Lloyd's Weekly Newspaper* for November 7, 1905, a postcard (undated), and a letter dated June 27, 1905, from the secretary of the said society, a letter dated July 5, 1905, from G. Guy White and Co., Ltd.

(d) Miss Ada Florence Foley, dated November 10, 1905, exhibiting a letter dated October 28, 1905, from the secretary of the said society, a copy of a letter of same date from G. Guy White and Co., Ltd., a circular of G. Guy White and Co., Ltd., and a card of fees dated November 1, 1905, of G. Guy White and Co., Ltd.

(e) Mr. Ralf Peacock, dated November 10, 1905.

(f) Mr. William Fletcher Thomas Brown, dated November 28, 1905, exhibiting a circular dated April 24, 1905, and deposit certificate (undated), both issued by G. Guy and Co., Ltd. (the predecessors in business of G. Guy White and Co., Ltd.), and an office copy of the Memorandum of Association of G. Guy White and Co., Ltd.

(2) A certificate of the conviction on May 2, 1904, under the Dentists Act, of G. Guy White and F. Sinclair Kennedy.

(3) A statement, dated November 10, 1905, exhibited by the British Dental Association.

(4) Letters from Messrs. Perkins and Co., dated November 27, 1905; Messrs. Frizell and Co., dated November 28, 1905; and and Mr. T. Morford, dated November 28, 1905, three of the chemists named as references in the circulars of G. Guy White and Co., Ltd., to the solicitors of the British Dental Association, denying all authority for such use of their names.

(5) The file of G. Guy White and Co., Ltd., at the office of the Registrar of Joint Stock Companies.

(6) Letters from the following of the seven above-mentioned dentists: from Mr. Shea, dated November 11; Mr. Smart, dated respectively November 13 and 29; Mr. Bennett, dated November 15; and Mr. Levason, dated November 22, all in 1905.

(7) A letter from G. Guy White and Co., Ltd., to Mr. Atwood, dated March 28, 1905.

(8) A certificate, dated April 5, 1905, for one share of £1 fully paid, of G. Guy White and Co., Ltd, in the name of Mr. D. Shea.

(9) The oral evidence of the following persons:

(10) (a) Mr. Hole, from the office of the Registrar of Joint Stock Companies; (b) Mr. G. S. Paternoster; (c) Miss A. F. Foley; (d) Mr. R. Peacock; (e) Mr. W. F. T. Brown; (f) Mr. W. Bennett; (g) Mr. A. F. Green; (h) Mr. D. Shea; (i) Mr. J. J. Atwood; (j) Mr. G. Blount.

Messrs. Atwood, Green, Bennett, and Shea attended in answer to their notice, Mr. Atwood being accompanied by his solicitor, Mr. Woodhouse.

Mr. Turner attended on behalf of the British Dental Association, accompanied by Mr. W. F. T. Brown, managing clerk to Messrs. Bowman and Curtis-Hayward, their solicitors.

The Registrar having read the above report, the PRESIDENT explained that it was for the Council to decide whether or not the parties should be heard on the facts as found by the Dental Committee, or whether they would at once proceed to consider the report.

Dr. NORMAN MOORE moved: 'That the Council proceed at once to pronounce its judgment on the report.'

Sir VICTOR HORSLEY seconded the motion.

Dr. McVAIL moved as an amendment, 'That the parties be heard.'

Mr. BROWN seconded the amendment.

Mr. TOMES having appealed to Dr. Norman Moore to withdraw his motion in favour of the amendment, Dr. Norman Moore agreed to do so; and the amendment was put as the substantive motion and agreed to.

At the invitation of the President, Mr. WOODHOUSE then addressed the Council on behalf of Mr. Atwood, stating that his client was an innocent victim, and that his interest in the company ceased when he was given a £1 share for signing the Memorandum of the company. He was willing to relinquish his share at once, and do his utmost to get out of the difficulty in which he had placed himself.

Mr. A. F. GREEN then addressed the Council, and admitted the facts as stated in the report. He stated that he had no knowledge that Guy White or Kennedy had been convicted until some time after he was connected with the company. He did not appear before the Council as a doctor who had been charged with malpractice such as abortion, neither did he appear in the capacity of a solicitor who had misappropriated funds belonging to clients. During the whole of his career nothing had been brought against him which was a reflection on his character as a professional man, and he contended that the present charge was merely a technical point in connection with professional etiquette. He simply acted as the servant of the company, and the conduct of the managers did not come within his province.

Mr. SHEA, in the course of his address to the Council, said that he became acquainted with Guy White and Co. through answering an advertisement in the *Daily Telegraph*. He saw Mr. Kennedy at 215, Piccadilly, who told him that the company, having the necessary capital, intended opening a couple of branches, probably on the South Coast, and then asked him to sign the Articles of Association, as one or two more names were required to make up the number for registration purposes. He demurred to doing it on that day, but a few days later he received a letter from Guy White and Co. asking him to call again, and offering to pay one guinea for his expenses. He thereupon went to Piccadilly again, signed the Articles of Association and the nomination for the Board of Directors, and his connection with the company then ceased. It was the first time he had had to apply for employment, as he had been for twenty-six years in the continuous service of the late James Smith Turner, leaving on account of ill-health, and he answered Guy White's advertisement in looking for respectable employment. As soon as he received the Registrar's letter, he transferred his share; and he



would do all in his power to help the Council to wipe out the company and its originators, which had been guilty of conspiracy in trapping people into a scheme which was carried on with so much cunning rascality.

Mr. BENNETT, having admitted the accuracy of the report, stated that his answer to the charge was precisely the same as Mr. Shea's.

The Council's SOLICITOR (Mr. Winterbotham) announced that a letter had been received from Mr. Blount, stating that he was unable to be present, and that he had now severed his connection with the company.

Mr. TURNER then addressed the Council on behalf of the complainants, and pointed out that Mr. Green declined to offer himself for examination when before the Committee, and that the statements in Mr. Blount's letter just read were not in accordance with the evidence before the Committee. The Committee had found that the statement in the circulars issued by Guy White and Co., that many of the leading certificated chemists and druggists recommended the company to their customers for reliable workmanship and moderate charges, was false. It had also been proved that Mr. Green was in charge of the operating works during the whole period that objectionable circulars were being issued. There was no doubt also that the company was connected with the Benevolent Dental Association, the hon. secretary of which, Mr. Drew, sent patients to the company and received a commission for so doing; and there was not a tithe of evidence called to show that any gratuitous services were ever rendered to poor patients. Five of the seven practitioners charged alleged that they had been duped, and perhaps the Council might feel that the justice of the case would be met by adjourning the judgment for six months, in order that they might show their *bonâ fides* in the matter. But with regard to Blount and Green, as professional men they had a personal responsibility to the public; but through becoming connected with the company they avoided that personal relation which should exist between a patient and a practitioner.

Mr. GREEN, having obtained permission to again address the Council, stated, in reply to Mr. Turner's remarks, that he had personally treated dozens and dozens of cases every week, and the patients had taken away teeth absolutely free, gratis, and for nothing.

No member of Council moving that the report be referred back to the Dental Committee, strangers withdrew, and the Council deliberated on the case *in camera*.

The parties and strangers having been readmitted, the PRESIDENT announced seriatim that in the case of John Jones Atwood, Thomas Rose Smart, Walter Bennett, Montagu Alex. Levason, and Daniel Shea, the further consideration of the charge against them had been postponed until the next session of the Council, of which due notice would be given them, and at which they would be expected to be present.

In the cases of Algernon Frederick Green and George Blount, the Council found that they had been guilty of conduct which was infamous or disgraceful in a professional respect, and had directed the Registrar to erase their names from the Dentists' Register.



**Geoline.** A fancy name for a variety of soft paraffin (*Paraffinum molle*), best known as vaseline.

**Geosote.** A valerianate of guaiacol; is credited with remarkable antiseptic and tonic properties, stimulating and healing.

**Geranin.** The dried extract of *Geranium maculatum*, an American plant called 'crane's-bill,' a powerful astringent, used in the United States for relaxed conditions of the mucous membrane of the mouth and throat.

**German Silver** of high grade is very useful for many dental purposes, such as regulating appliances, matrices, temporary plates, mixing spatulæ (*see Cement*), etc., and it is well to know that any tarnish may be removed by the use of cold full strength hydrochloric acid. *See also Alloys.*

**Germany, School Dentists in.** *See School Dentists.*

**Germicides**, while being gradually abandoned as prophylactics in routine toilette of the mouth, according to the latest researches as to their action, are, nevertheless, being studied and used with greater discrimination in special cases of root infection and the sterilization of instruments. Hunt and Miller have proved that oral antisepsis can only be maintained for a short time by the use of corrosive sublimate (*see Antiseptics*), and the hopes which were entertained of formalin (which *see*) have been disappointed.

The very thorough experiments initiated by the London County Council on a large scale also proved conclusively that corrosive sublimate and phenol were the only certain destructors of tuberculous sputum, against which, and *Bacillus diphtheriæ* and *Pyogenes aureus*, formalin, sulphur dioxide, bleaching-powder and Condyl's fluid were equally ineffective. There is, as might be theoretically expected, a certain selective affinity by reagents against particular pathogenic organisms, and this is remarkably shown in the case of chinisol (which *see*) respecting pyogenic organisms, as clearly demonstrated by Dr.

McWhinney, and described in the *Dental Annual* of 1904. Again, as a special application, may be instanced formalin (which see) in root treatment. In fact, it is illogical to assume that any one or two agents should be equally destructive to the many differing pathogenic microbes. Heat alone, at a temperature intolerable to all life, is a common destructor. As will be seen in the discussion of sepsis and antisepsis, it is found in general surgery that to maintain the highest possible resisting power of the somatic cells and all living tissue, the exclusion as perfectly as possible of intruding dangers is the true antisepsis.

**Gilbert Dental Manufacturing Co.** (S. Eldred). *See* **Manufacturers, etc.**

**Gionale di Corrispondenza pei Dentisti.** *See* **Journals.**

**Glacialine.** A boric compound used for the preservation of food, and only mentioned because frequently described as harmless when added to infant's milk and food, and should be strongly discountenanced.

**Glands.** *See* **Lymph Glands.**

**Glonoin.** An alternative name for nitro-glycerine (also called trinitro-glycerine, trinitrin). *See* **Nitro-glycerinum.**

**Glutol** (formaldehyde gelatine), the value of which as a wound remedy has already been questioned, and which has scarcely been mentioned in the literature of the last few years, has proved very useful in the hands of F. Dörrwächter.

**Glyco-Thymoline** (Kress). *Kress and Owen, 221, Fulton Street, New York. (See also Index to Advertisements.)*

This proprietary preparation, to be used as a mouth-wash in stomatitis, antral and general gingival inflammations and suppuration, is of alkaline reaction, and of the salinity of blood, instead of being acid, astringent, and escharotic, as are so many antiseptics which fail in exosmotic quality. Very high authority has suggested that in health the best routine mouth- and nose-wash is

probably normal salt solution ; but in special cases glycothymoline would appear to be open to the least possible objection. It may very conveniently be used with peroxide of hydrogen, as the acidity of the latter, being neutralized, promotes rapid action ; but for this very reason the mixture must not be prescribed for keeping.

**Gold.** It has been seriously suggested that the curious and yet unexplained action of metals in their relation to vitality, etc., and the effects observed in the inhibition of bacterial growth by such as copper and gold, may be due to an unsuspected and slight radio-activity, which in certain cases may determine their suitability as fillings, etc. One of the most interesting investigations with this metal has been in connection with some experiments with bacteriological culture media, which seem to indicate an inhibitory power of this metal and platinum upon the growth of certain microbes. If this is confirmed, it will have an interesting bearing upon the survival by empirical experience of its use as a filling material in many other respects 'incompatible with tooth structure.'

Respecting 'sealed gold inlays,' *see* **Inlays**.

Many preparations of gold other than the ordinary 'foil,' beaten or rolled, have lately been placed upon the market. These are variants upon the chemically precipitated or amalgam-process kinds, and differ considerably in microscopical appearance, as well as in working. The older forms known as 'sponge,' or 'crystal,' followed by similar ones called 'solila,' 'sun-lit,' 'moss-fibre,' etc., have been lately added to by a slightly modified form of the old Watt's crystal gold, which is in flat sheet form instead of amorphous blocks, and has, microscopically, a more highly-developed crystalline structure. It is certainly more convenient to handle and work, but time alone can test its durability.

Foil is now put up in a greater variety of forms, the

most novel being compound lamellæ, consisting of interior heavy foil with externally thin, in strips or cylinders. For this is claimed a combination of maximum adhesiveness and solidity with rapid working. *See also Fillings.*

It is found that some of the popular mouth-washes, when used frequently and in considerable strength, notably discolour the surface of gold in the mouth. While more obvious with the alloys used in bridge-work, etc., there is evidence that it occurs with the purest gold used for fillings. In an unsuccessful action brought by an American patient against a dentist in New York for damages respecting the alleged use of impure or inferior gold, this fact (as proved by expert evidence) was one of the points of the defence, though it could not be positively alleged in the particular instance.

**Golden Seal.** *See Hydrastis.*

**Gorit.** A synonym for **Calcium Peroxide**, which see.

**Grafting, Bone-.** *See Decalcified Bone.*

**Grants in aid of Scientific Research**, by the Odontological Society of Great Britain.

*Regulations of the Council*—1. That the grants exist for the furtherance of scientific research in connection with dentistry.

2. That all grants shall expire on May 1 next following the date on which they are made, when a statement of expenditure shall be forwarded to the Hon. Secretary, 20, Hanover Square, W.

3. That no part of any grant shall be applied in payment of personal expenses in connection with the research for which the grant has been made, unless a resolution to that effect has been duly passed by the Committee. Every recipient of a grant shall be deemed to have notice of these rules.

4. That when the whole of the expense of the inquiry has been provided by the Committee, the result of the

investigation shall be the property of the Odontological Society.

In any case in which the author desires to publish a report of work done under a grant from the Committee elsewhere than in the Transactions of the Society, it shall be a condition of the grant that the permission of the Committee be first obtained, and the following note affixed to the published report :

\*.\*.\* Towards the expenses of this research a grant was made by the Odontological Society of Great Britain.

5. That apparatus purchased with the grant shall be the property of the Society, and be returned at the expiration of the grant, unless the Committee shall otherwise determine.

6. That a report shall be furnished to the Committee by the recipient of the grant (or an interim report if the object of the grant be not then attained) on April 20 following the allotment, containing—

- (a) A brief statement for the report of the Scientific Grants Committee, showing the results arrived at or the stage which the inquiry has reached.
- (b) A general statement of the expenditure incurred, accompanied, so far as is possible, by vouchers.
- (c) A list of the instruments, specimens, etc., purchased or obtained out of the grant or supplied by the Committee, which are still in the possession of the recipient.
- (d) Reference to any Transactions, Journals, or other publications in which the results of the Research have been printed.
- (e) If a renewal be desired an application should be sent at the same time.

The British Medical Association also has a Scientific Grants Committee for awarding endowments for research

on subjects which are quite within the province and scope of dental students or practitioners having the time to devote to it.

Since 1874, when the Committee was established, the Association has voted £18,829 for scientific research, in addition to £1,650 voted to other societies and bodies outside the Association. The Committee in June each year select the grantees and scholars.

The scholarships exist for the encouragement of research in Anatomy, Physiology, Pathology, Bacteriology, State Medicine, Clinical Medicine, and Clinical Surgery.

Scholars shall devote the whole of their time to the work of research, and shall not hold another scholarship worth more than £50, and their work shall be subject to inspection.

Applications for scholarships and grants should, as a rule, be accompanied by a recommendation from the head of the laboratory in which the applicant proposes to work, setting out the fitness of the candidate to conduct such work, and the probable value of the work to be undertaken. This is not intended to prevent applications for grants in aid of work which need not be performed in a recognised laboratory.

The appointment shall be for one year only; but each scholar shall be eligible for re-election on the recommendation of the Committee, provided that his whole term shall not exceed three years.

The holder of the Ernest Hart Memorial Scholarship shall devote himself to the study of some subject in the department of State Medicine.

Each applicant for a Research Scholarship shall sign a form, a copy of which can be obtained on application to the General Secretary, 429, Strand, London.

Each scholarship year shall be deemed to commence



upon July 1 and to terminate upon June 30 next following.

In the case of grants, recipients are required to present a short interim report of their work, pending its completion, which is ultimately published in the *British Medical Journal*.

It is now open to recipients of grants to retain any apparatus they may have purchased with moneys voted to them by the Association, provided the Association does not require its return.

**Guaiacol** (and the carbonate in the new U.S.P., though not official yet here), being the principal constituent of creosote, has been largely used as a substitute in treating odontalgia, etc., as the taste and odour, though much resembling creosote, is thought to be more agreeable and less escharotic.

It is generally found, however, that the results of comparative use do not justify the substitution. There are many combinations and derivatives of it in the market under various names, such as 'geosote,' and an oily form called 'eosote,' containing also valerianic acid, and 'creo-soform,' a grayish powder said to liberate formaldehyde, but the constitution of which is very doubtful. A complicated derivative called 'guaethol,' in insoluble crystals resembling menthol or phenol, has lately been said to be a powerful obtundent in certain cases.

**Guardians** of the Poor Law Schools and Workhouses. Appointment of dental officers. *See also Societies (School Dentists')*.

Some uncertainty exists in the minds of many holding Poor Law dental appointments with regard to the conditions under which they are held. There is no doubt that a dentist who is appointed under the Statement of Conditions laid down in the letter of the Local Board, dated July, 1897, is a *Poor Law Officer*, appointed by the

Guardians under the Assistant Officers Order, since no order relating to the appointment of dentists exists, and the only instruction on the subject by the Local Government Board is that given in a Circular Letter to Boards of Guardians and Managers of Poor Law Schools, dated September 24, 1901, and the aforesaid Conditions, dated 1897. Under these circumstances the appointment is held at the will and pleasure of the Guardians, but such dentists are Poor Law Officers and subject to the provisions of the Superannuation Act of 1896. Whether fixity of tenure will be granted to dental officers, carrying with it the right of appeal to the Local Government Board in case of any dispute with the Guardians, is uncertain, though it is hoped that the dental officer will eventually be placed in as favourable a position in that respect as the medical and other senior officers. In a few cases the Guardians have entered into a *contract* with the dentist, in which case he is not a 'Poor Law Officer.'

Subjoined is the above-mentioned Circular Letter to Boards of Guardians and Managers of Poor Law Schools (Metropolis):

LOCAL GOVERNMENT BOARD,  
September 24, 1901.

SIR,

I am directed by the Local Government Board to state that they have had under consideration the question whether the remuneration of dentists appointed by Boards of Guardians or Managers for Metropolitan Poor Law Schools should not be a charge on the Metropolitan Common Poor Fund.

So long as the employment of a dentist was the exception rather than the rule, the Board felt that it would not be equitable that the salaries of such officers should be repaid from the fund. The Board, however, note with satisfaction that the employment of dentists is now very general, and, under these circumstances, they consider that there is no longer any reason why the reasonable expenditure of Guardians and Managers on the salaries of officers of this class should not be reimbursed from the fund.

The Board direct me to enclose a copy of a Statement of Conditions which they recommend for adoption in regard to the appointment of dental officers, and to state that they will be prepared to consider applications for their sanction, under section 69 (4) of the Metropolitan Poor Act, 1867, to appointments of duly qualified dentists

which may have been already made, or which it may be proposed to make. The Board would add that they consider it necessary, for the purpose of the fund, that the remuneration of such officers should be by way of annual salary and not by fees.

I am, etc.,

S. B. PROVIS,

Secretary.

The Clerk to the Guardians or Managers.

The following is the official original Statement of Conditions recommended for adoption by Boards of Guardians, or of Management, in regard to the appointment of dental officers :

1. The officer appointed should be required—

To attend at the school or other appointed place according to his agreement with the Guardians or Managers.

To inspect the teeth of all children admitted since his last visit.

From time to time, according to his agreement, to inspect the teeth of all the children in the school or workhouse, as the case may be.

To attend duly and punctually at each visit upon each child requiring dental treatment, and upon any child who may be brought to him for treatment in the intervals of such visits.

To keep a record of his work, and to report the same to the Guardians or Managers, in a book to be provided by them for the purpose, under the following heads :

Date.

Number of children inspected.

„ temporary teeth extracted.

„ permanent „ „

„ teeth filled.

„ scalings.

„ other operations performed.

Any matters which the dental officer may deem necessary or desirable to bring to the notice of the Guardians.

This book should ordinarily be kept at the school or workhouse, and should be laid before the Guardians or Managers by the clerk at each meeting, and should be produced to the Inspectors of the Local Government Board when required.

2. The dental officer must be duly registered in accordance with the statutes in that behalf (41 & 42 Vict., c. 33, 1878, and 49 & 50 Vict., c. 48, 1886), or if not so registered, by reason of any medical or surgical qualification exempting him from the obligation of registration as a dentist, the officer appointed shall produce satisfactory evidence that he holds a license in dental surgery from either of the following :

The Royal College of Surgeons of England,  
 " " " Edinburgh,  
 " " " Ireland,  
 The Faculty of Physicians and Surgeons of Glasgow,  
 or other approved authority.

3. The Guardians or Managers may pay a dental officer either by—
  - (a) an inclusive salary, or
  - (b) partly by salary, and partly by fees on a fixed scale for specified operations, provided that all payments for extractions shall be included in the salary assigned to the officer and shall not be made by fee.

4. If the dental officer attends at the school, or workhouse, it would be necessary that the Guardians or Managers should provide for his use a suitably equipped surgery, including a dental chair and a dental engine, and such other apparatus as may be necessary. It is desirable that they should also provide the requisite materials for fillings, and such special appliances as may be needed for mechanical treatment.

LOCAL GOVERNMENT BOARD,  
*July, 1897.*

## H.

**Hæmophilia**, or **Hematophilia** (bleeding), not unnaturally is a constant source of anxiety to the dental practitioner, when we find it stated by *Grandidier* that out of the first thirty-nine cases of fatal bleeding following operations collected by him, ten were caused by teeth extraction, and that no other one operation had so bad a record. In 1875 *Moreau* published an account of twenty-six fatalities after extraction in the hæmophilic diathesis. Of the most recent remedies, ovarian extract has been used as a substitute for adrenalin when the latter failed, upon the ground that, as hæmophilia is rare among females, there may be some specific virtue in the internal secretion.

A case reported by *Grant* (*N. Y. Med. Journ.*) was a boy suffering from hæmorrhage from a cut on the foot, in which the bleeding was checked apparently only by the use of ovarian extract, adrenalin and other hæmostatics having proved useless. In the case here reported, 2½ grains of ovarian extract obtained from sheep were given thrice daily.

Boggs (*Deut. Arch. f. Klin. Med.*, No. 79, 1904), who has experimented with the calcium salts, has substituted calcium lactate for calcium chloride. It has the same effect on the coagulation time, is tasteless, and is well borne. In one case it reduced the coagulation time from 5 minutes to 3·2 minutes, and in another from 6·7 minutes to 3·7 minutes.

Of external applications, stypticine (which see), also internally administered, has given good results.

An interesting account of a family of hæmophiliacs was given by Lossen in *Schweizerische Viertel. für Zahnheil.*, June, 1905:

‘The history of the family up to date comprises the individual records of 212 members divided as follows: 111 men, 96 women, and 5 still-births. Not a single female member of the family inherited the diathesis. This observation is in perfect accord with previous statistics upon the subject of the hæmorrhagic diathesis. Out of the 111 male members of the family, 33 were hæmophiliacs, and of these 18—more than one-half—died of uncontrollable hæmorrhage, as follows: Hæmorrhage of the umbilical cord, 1; of the subcutaneous connective tissue and muscles, 2; of the lip, 5; of the gums, 2; of the palatal vault, 2; consequent upon cutaneous wounds, 2; gastric hæmorrhage, 1; hepatic, 1; cerebral, 1; pulmonary, 2.

‘The most common hæmorrhages were those of the subcutaneous variety, which occurred in 16 out of a total of 33 individuals. These subcutaneous hæmorrhages resulted from slight injuries. Next in the order of frequency are the hæmorrhages caused by superficial wounds. In this group the writer includes nasal, labial, and gingival hæmorrhages. Hæmatemesis occurred in two cases, of which one terminated fatally. Hæmorrhage of the rectum caused by the passage of hard fæces is recorded in one

case; hæmaturia in three cases; hæmoptysis, spontaneous or caused by slight effort, in four cases; hæmarthrosis in nine cases (six in the knee-joint). The diathesis manifests itself more intensely in young subjects, and is likely to end fatally in the very young. In a series of eighteen deaths, seven were of patients under three years, five between three and ten, one between ten and twenty, two between twenty and thirty, and two between thirty and forty. After the fortieth year the hæmorrhagic tendency declines gradually.

‘The author’s studies and observations have led him to conclude that women are rarely tainted by the diathesis; that marriage between a male hæmophiliac and a healthy female will result in the procreation of healthy children free from the diathesis; and that, on the contrary, if the mother have the slightest trace of the diathesis, even if the father be absolutely healthy, they will procreate children in whom the diathesis will become manifest sooner or later.’

*H. Sahli*, in *Zeitschrift für Klinische Med.*, vol. lv., Nos. 3 and 4, has studied the peculiarities of the blood in this strange disorder. According to some the conditions are due to high blood-pressure, but this is improbable, since diseases commonly associated with high blood-pressure, such as chronic nephritis, do not usually run with hæmophilic symptoms. In the author’s cases, the figures obtained with the Riva-Rocci instrument were normal or below normal. Microscopical examination of the blood showed only a moderate relative diminution of polynuclear leucocytes, with relative increase of lymphocytes. The absolute number of leucocytes was normal or diminished. In two cases the platelets were also counted repeatedly, but their number was never above normal. The alkalinity of the blood, the dry residue of the serum, the depression of the freezing-point, and the



amount of fibrin in the blood, were not altered. The time of coagulation was most carefully estimated, and it was found that in the intervals in the hæmorrhages clotting was much delayed, but normal or even hastened during severe bleeding. The author thinks very little can be done for the disease, except to improve the general constitution; that local hæmorrhages are best controlled with compression, gelatin, and adrenalin, but the latter two drugs should never be injected subcutaneously; and concludes that there is as yet no drug from which good results can be expected from internal administration.

According to our present knowledge, bleeding is still best treated locally, when its symptoms present themselves, by adrenalin, no better all round application having been introduced. There has been suggested, however, a new vehicle by Mignon, who uses an ointment of adrenalin with vaseline for local application in place of the ordinary solutions of this drug. The following formula is used :

Adrenalin	...	...	0.03 gm. ( $\frac{1}{2}$ gr.).
Liquid vaseline	...	...	3 gm. (45 gr.).

To this is added :

White vaseline	...	...	12 gm. (3 dr.).
Spirit of geranium	...	...	3 drops.
Lanoline	...	...	15 gm. (4 dr.).

Its action is a little less rapid than after the employment of a 1 : 1,000 solution, but it is more prolonged. In cauterization of the nasal mucous membrane it prevents secondary congestion. In operations which may be followed by secondary hæmorrhage it is well to apply first a 1 : 1,000 solution of the drug, and follow this by an application of the ointment. By its use it is sometimes possible to avoid tamponing in cases of hæmorrhage.

—*Journal des Practiciens.*

Bleeding, however, may be so marked in individual cases as to defy all the efforts of modern surgery

and our knowledge of styptics or hæmostatics. There was an editorial upon the subject in the *Lancet* of October 10, 1903, describing our knowledge of its treatment as even more unsatisfactory than of its etiology and pathology, suggesting the importance of prophylaxis when diagnosed. According to *T. Wilson Parry* (*Lancet*, February 21, 1903), in a case of spontaneous bleeding from a small interdental fissure in a boy aged seven years and four months, the usual agents—including alum, tannic acid, turpentine, perchloride of iron, and adrenalin—failed. After five days and nights of almost continual blood loss, application was made of a pledget soaked in a 30-grain to the ounce solution of calcium chloride, which succeeded. Mr. Parry dwells upon its advantages of cleanliness and safety. It is pointed out in the *International Journal of Surgery* that in all cases of bleeding, stimulants should be rigidly withheld until the crisis has passed.

**Hæmorrhage.** See **Hæmophilia**, **Hæmostatics**, etc.

**Hæmostatics.** See **Hæmophilia**, **Hæmorrhage**, **Adrenalin**, **Quinine**, **Styptics**, **Stypticine**, etc.

**Hallam and Son.** See **Manufacturers**, etc.

**Hand sterilization** has now quite a literature devoted to it, differing views being still maintained as to its possibility. It is, indeed, upon the highest and most recent authority pronounced to be practically impossible. The *International Journal of Surgery* asks: 'How long shall we wash our hands before operating? The only answer to this is that we can never wash them long enough, since there is evidence that we have no means of entirely sterilizing them. Rubber gloves form the only logical remedy, and should be always used unless there is good reason to avoid them, either because the operator cannot as easily feel tissues and handle needles with them, or because the

surgeon is so careful of his hands that he has a legitimate belief that they are as nearly sterile as possible.'

Fortunately, in dental surgery the matter is not of the same importance as in other departments of operative work, as the mouth is not only never aseptic, but has great powers of resistance to intruding microbes. From some comparative experiments the nearest approach to sterility of the skin is obtained by the use of 'sublimine,' an ethylenediamine-sulphate of mercury, which is readily soluble, can be used with soap, and does not irritate or roughen. But of practical importance is the necessity of removing readily the odour of such chemicals handled, as iodoform, for instance. This, it is said, can be done by either a weak solution of tannic acid, by chloroform, or by flaxseed-meal water. Chlorine water has also been strongly advocated, not only as an efficacious disinfectant and sterilizer, but as a complete deodorant, if followed by an ablution with diluted eau de Cologne or lavender-water.

Instead of using chlorine water, which is unpleasant to keep and handle, it has been suggested to employ nascent chlorine gas, which is extemporized as required by taking in one hand a little commercial chloride of lime, and in the other some carbonite of sodium, which, when mixed under water, generates the free gas. This treatment, if continued, should, we imagine, be as injurious to the epithelium as the continual wearing of rubber gloves seriously advocated by some eminent and conscientious operators. Probably the fact is that, if the instruments are right, more risks are run by the dental surgeon than by his patient. *See also Disinfectants, Germicides, etc.*

**Harvard Co., The.** *See Manufacturers, etc.*

**Hawaii.** The new territory of Hawaii has not been slow to promulgate a law, which is almost ideal in its comprehensiveness, dealing with the practice of dentistry. There is only one 'portal,' and both title and rights of practice

are protected, with heavy penalties for wrongful description in any way, all applying to persons, associations, and companies, whether incorporated or not. The measure is not retrospective as regards *bonâ-fide* practitioners, and came into force upon April 25, 1904. The full text of what appears an enlightened specimen of legislation may be read in *D. Cos.*, XLV., p. 507.

**Hazeline** is, like 'Pond's Extract,' one of the trade names for a preparation of witch hazel, a solution of which is now official as *Liquor hamamelidis*. There can be no longer any doubt as to the valuable astringent and anodyne properties (so long and persistently denied) of this drug. It is confidently stated by some authorities, and denied by others, that the essential properties and peculiar aroma are due to traces of formaldehyde. It is now a regular constituent of most of the trade American mouth-washes and lotions.

**Heat in Connection with the use of the Essential Oils and Volatilizable Agents.** It is a practice with many operators, when using the essential oils for the purpose of relieving sensitive dentine or to disinfect cavities of decay or root-canals, to follow the application with a stream of hot air in order to 'drive the agent into the tissues,' as frequently stated by those unmindful of the effect of heat upon the volatile oils under the circumstances here described.

The essential or volatile oils are agents which volatilize at ordinary temperature or upon the application of even a slight degree of heat, the vapours escaping in the direction of least resistance. Heat hastens volatilization, and when a current of warm air is directed into a cavity wherein a dressing consisting of an essential oil has been inserted, the oil volatilizes, and the vapour escapes through the widest opening. In the case of carious cavities and root-canals, if the volatilization of the oil be hastened by warm

air a very insignificant amount will be absorbed into the substance of the dentine, and the result will be less satisfactory than if the agent had been allowed to volatilize spontaneously. — JULIO ENDELMAN (*D. Cos.*, XLVI., p. 411).

But respecting the use of heat with medicaments, the foregoing should be carefully distinguished from the remarkable obtundent results obtained from the application to dehydrated dentine of very hot non-volatile liquids such as saturated solutions of phenol, chloretone, etc.

**Hedonal**, a synthetic hypnotic of the urethane series, has been recommended for use with chloroform narcosis.

*N. Krawkoff's* clinical experiments have suggested the following rules: The patient should be given 1 to 1.5 grammes (grs. 15 to 24) of hedonal an hour previous to the operation. When he has been asleep for an hour chloroform is administered, and immediately after the operation is proceeded with. It is claimed for this mode of inducing anæsthesia that it shortens or eliminates the stage of excitation. The condition of insensibility is soon established and continues uniform, whilst even with a prolonged administration of chloroform the action of the heart does not become appreciably weaker. Hedonal acts in this respect as an antidote of chloroform, the paralyzing effects of which are thus eliminated. This combined method has the additional advantage that the patients see nothing of the preparations for the operation.

*E. D. Podhoretzki* expresses himself likewise greatly in favour of anæsthesia by hedonal and chloroform.

**Hermophenyl**, a mercury-phenol-disulphonate of sodium, is a white powder, extremely fine and amorphous; it is very soluble in water, and contains 40 per cent. of mercury.

According to Dr. Bérard, hermophenyl possesses bactericidal properties to a great degree. A 10 per cent. solution of hermophenyl destroys in ten minutes the

principal pathogenic bacteria (*Bacillus coli*, Eberth bacillus, the staphylococci, *Bacillus subtilis*, and *Bacillus pyocyaneus*). Solutions of 1 : 1,000 are equally destructive to the micro-organisms named, but require a greater length of time to accomplish this result.

It is not precipitated by sodium, by hydrochloric acid, or by ammonium sulphide; nor is it decomposed by heat at 120° C.

Hermophenyl does not amalgamate; a leaf of gold when left for forty-eight hours in contact with a 1 : 20 solution of hermophenyl remained intact. This is a point worthy of consideration, inasmuch as it may be used without fear of harming gold fillings or gold appliances.

Hermophenyl is a powerful antiseptic and an excellent antiphlogistic, especially in cases of buccal inflammation. It is not irritating. Its taste is not objectionable, especially when associated with the essential oils usually employed in dentistry.

The dose for daily use should be of from  $\frac{1}{3}$  grain to  $\frac{2}{3}$  grain to a half-glass of water. For therapeutic irrigations the proportion should be from  $\frac{2}{3}$  grain to 2 grains to  $\mathfrak{z}$ viii water. For topical applications upon ulcerated surfaces the proportion should be increased from  $\frac{1}{3}$  grain to 2 grains to  $\mathfrak{z}$ j water.—Dr. MONNET, Professor of Materia Medica, École Dentaire de Paris.

**Heymen-Billard (A.).** See **Manufacturers, etc.**

**Hill (Orlando W. F.).** See **Manufacturers, etc.**

Mr. Hill, for many years occupying a responsible position in the firm of the late W. G. Rutterford and Co., has an agency and supply depot, where his late friends and customers may be assured of securing the many specialities hitherto dealt in by the late long-established firm, and his personal attention to every matter of transfer, partnership, and all business matters of which he has much experience.



**Hirschberg and Fels.** See **Manufacturers, etc.**

**Hollow Posts** for crown and bridge work, instead of solid pins, are strongly recommended by *Garrett Newkirk (D. Digest, X., p. 1460)* on several grounds of advantages claimed. They may be cylindrical or conical, and if lightly closed by foil and solder, can be easily opened, either for repair, or substitution of a removable bridge, or for treatment of a root. They differ from the old-fashioned hollow box and split pin for pivot-work in being intended to be structural portions of a bridge.

**Holocaine Hydrochloride** is frequently mentioned as one of the substitutes of cocain and eucain (probably because employed in ophthalmic surgery, as cocain was first used); but it has been found to be exceptionally toxic in hypodermic injection, so that its use (although its anæsthetic effects are prompt and lasting) cannot be justified.

**Honey-water**, which is quite remarkable as containing no honey, and, although not official, widely known as *aqua mellis*, is one of the best applications upon a mother's finger in rubbing or massaging inflamed gums of teething children. It is found to be soothing and extremely pleasant where honey or glycerine is objected to.

**Hospitals.** See **Colleges; also Appointments.**

**Hot Air** and its dental uses is fully described by *F. B. Norris* in *D. Brief*, reprinted in *D. Cos., XLVI., p. 1089 (see also Heat)*. We have omitted those portions which are properly criticised as unjustifiable in our previous remarks on heat respecting the carrying of volatile medicaments into roots by its agency. Otherwise the author's methods and use of special dehydrating agents seem to be accurate and useful. He says:

‘I apply the dam and absorb the moisture as much as possible, and then evaporate it, using the merest breath of warm air at first, not employing a strong blast of hot air, for that hurts, while gentle whiffs are quite bearable.

When the cavity begins to look white I wet it several times with zinc chloride in alcohol and chloroform, drying out as before, and increasing the blast as the patient is able to bear it. The zinc-alcohol-chloroform mixture, having an affinity for moisture, draws it from the dentine, thus leaving the cavity perfectly dry and a non-conductor; so if you are quick about it and have a sharp burr in the engine, you can cut where you could not touch before. Another method I have found successful is to wet the cavity with methylene bichloride, drying it out with cold air. With this you may use all the pressure you can get; the methylene evaporates so rapidly that it reduces the temperature and causes the pulp to contract. The cavity may then be cut in a bold way. It is a question, however, whether the rapid reduction of temperature is always a safe procedure, as it may cause some irritation of the pulp. The same thing might also be said of too much hot air. Some men prefer to use compressed air from a cylinder. I have found, however, the foot-blower or a pair of double bulbs work very well for that purpose, although a single bulb will answer the purpose if one has a syringe that will hold sufficient heat. A strong blast may be used to keep a cavity (especially a labial one) in a lower tooth dry more effectively than by the saliva ejector.

Hot air will be found invaluable for removing crowns set with gutta-percha, and it may be done in half the time it takes to do it with a warm pair of forceps. In setting crowns with cement the heat is used for drying the tooth, and to hasten the setting of the cement, which is quite important in mouths where it is impossible to control the flow of saliva for more than a few moments. Some operators using high pressure claim they can blow the gum and blood away from the end of a root or tooth in such a manner that particles of salivary calculus may be located.

**Hubbard.** *The C. H. Co., Ltd.* See **Manufacturers**, etc.

**Hugemann** (Heinrich). See **Manufacturers**, etc.

**Hydrastis Canadensis**, or **Golden Seal**, two preparations of which are now official, is very highly thought of in America in not only all inflammations of the mucous membrane, but as a general tonic remedy. It is contained in many of the trade proprietary mouth-washes, and has slight antiseptic and styptic properties. It is allied to stypticine (which see).

**Hydrofluoric Acid**, used for etching or roughening the backs of porcelain inlays, is often found to be unsatisfactory. Possibly this is because there are known in the drug trade two forms, one of which is called the 'white acid,' and which alone makes a rough etch. The ordinary clear acid produces a smooth etch. The 'white acid' may be extemporized by evaporating in a lead dish a solution of ammonium carbonate to half the saturated bulk. The original bulk is restored by adding hydrofluoric acid. This should be again evaporated one-half, and kept in a gutta-percha bottle. It deteriorates by absorption of water, but produces on porcelain a satisfactory rough surface.

**Hyperæmia** and fresh cases of slight local inflammation of the pulp may be reduced with tolerable certainty by judicious use of oil of cloves, thymol, hydronaphthol, silver nitrate, etc. The latter has proved a very valuable remedy to me in these cases, applied in the form of powder on a pledget of cotton moistened in the oil of cloves or carbolic acid, and sealed in with zinc oxyphosphate. It may be left in the cavity for twenty-four hours, or even longer where the caries has not approached too near the pulp. In two different cases, where the pulps were protected by only a very thin layer of decalcified dentine, I found, some months later, that they had suffered a painless death, without giving any disturbance whatever. I

could not attribute the death with certainty to the action of the silver nitrate, though it is well to avoid an excess in such cases.—W. D. MILLER, *Internat. Dental Journal*.

## I.

**Identification** of either criminals or unknown dead bodies through models of the mouth or teeth, or evidence of dental experts, which we touched upon last year, has been startlingly confirmed by a case which occurred in America. The body of a young woman, upon which there was no other marks of identity, on expert examination showed some dental work, which, on being widely made known by an accurate description in the press, led to an almost immediate identification by her dentist. Also a remarkable case was reported in which probate of an important will was granted upon such identification, when, through the advanced state of decomposition or practical denudation of the skeleton, other evidence of identification seemed impossible. This case brought to the public mind the cases of alleged identification of bodies after a well-known fire in Paris, and the undoubted case of the conviction of a murderer who attempted the cremation of his victim, who happened to be wearing a full denture upon a platinum base. It was actually suggested in a professional journal that all dental practitioners should keep not only the casts or models of the patients they happened to take impressions for in the ordinary way of prosthetic work, but also models of their ordinary patients, and such friends and relations as would submit to it, in the interests of justice. It hardly needs to be pointed out that, as regards criminal anthropometry, as at present organized, the addition of confirmatory dental identification would greatly increase the already complicated organization; and, like the finger-print scheme (so difficult to classify), would at best but confirm identification which the present

methods, if carefully carried out, provide a simpler and almost infallible system for. Of course, in the case of a long-dead body, identification by the teeth and jaws might often be the only complete method available to satisfy the law; but an organized and intelligent anticipation of such rare emergencies would entail immense labour.

**Immediate Pulp Extirpation and Root Filling**, which a few years ago was widely advocated, but had since fallen into disuse, is being revived with the better understanding of pressure anæsthesia or cataphoresis on the one hand, and the employment of such potent and efficient dressings as formalin or their preparations.

Much has quite lately been written strongly advocating treatment which the writers claim can, within two sittings at the most, compass the painless removal of the pulp and the permanent filling of roots and cavity. Time alone can show whether the results claimed can be depended upon in routine work.

**Immediate regulation** is not being practised quite so much as formerly, the introduction of many ingenious regulating devices and methods by the specialists in 'orthodontia' having undoubtedly diverted attention from an uncertain and somewhat ruthless procedure, which, until more systematized, is likely to be a show performance for the clinic or hospital, rather than a justifiable method of private practice. Occasionally, however, this is the only operation possible, and then the best practice is to take a model, and upon the results of a 'phantom' operation construct a splint which shall be immediately ready for the mouth. The several forms of Dr. Grever's luxating forceps are the best yet introduced, and saw-cuts in the alveolus on each side of teeth to be moved are made by the most experienced operators. Some very successful operations were demonstrated at an annual meeting of the B.D.A. by *F. Lonnon*, and briefly reported in *B. D. J.*, XXV., p. 355.

**Immediate repair** of structures in the mouth, such as fillings, inlays, crowns, bridges, as well as removable prosthetic appliances, are daily being made more feasible by the introduction of facilities provided by diamond drills, gem burrs or wheels, the delicate and accurate mechanisms of 'repair outfits' with tiny screw thread-formers, nuts, etc., and the better knowledge of the properties of various cements, amalgams, and forms of plastic gold. 'Up-setting' or riveting by pressure is now conveniently provided for by special forceps, and it is found that platinum or other pins which have broken off quite short in porcelain 'facings' or teeth can be drilled out and others substituted by cementing in with either amalgam or other plastic.

This has been done in the case of 'gum block sections,' which could not possibly be matched or made without great delay and expense. It is found that when platinum pins are reset with amalgam they will stand revulcanization. For quick repair of facings in bridges or dentures, special teeth of new forms are coming into use, where the attachment is by sliding friction between ribs or dovetailed edges of backings and undercut grooves or recesses respectively. Some of the experimental forms of these, though highly convenient, are as yet weak in design, but obviously capable of improvement and many uses. The electric or other form of small furnace, with a moderately fusing 'body,' lends itself to the repair of certain breakages and fractures in porcelain which were impossible in the old days of large muffle furnaces, in which only uncertain results were clumsily obtained.

**Immunity** from decay and its prevention is the topic of much discussion and speculation, very diverse opinions still being held on the subject.

The literature is quite too diffuse to mention at length, but experimental researches into the predisposing and



active causes of decay, it may be hoped, will throw some light upon the problem.

As an instance of the difficulty of a generalization, we may allude to a thoughtful paper by *Stanley Read* in *B. D. J.*, XXVI., p. 1097, which, by a process of exhaustion, seeks to eliminate the usually-quoted causes of decay, arriving at the conclusion that the carious diathesis is not a matter of either environment or food, but is transmissible, and the result of the survival of the unfit. See **Caries, Decay, etc.**

**Immunization**, for special purposes before operations, has been often suggested as an accessory precaution with aseptic methods against pathogenic organisms.

Experiments upon this form of prophylaxis have been made in large number by *Dr. von Mikulicz-Radecki*, who reports to the *Intern. Journ. of Surgery* that nucleic acid was capable of raising the normal resistance to many virulent organisms as much as sixteen or twenty fold.

He found a 2 per cent. solution of nucleic acid most suitable, and injected about 50 c.c. subcutaneously a few hours before operation. He is of the opinion that about twelve hours' interval between injection and operation secures the most favourable conditions, as at this time the leucocytosis is on the rise. The injection is usually attended by a little local reaction and a slight rise of temperature. His general results are summarized in *D. Cos.*, XLVI., p. 789.

**Impression composition**, its use a second time, its asepticity and sterilization, was discussed at an annual meeting of the B.D.A. (see *B. D. J.*, XXIV., p. 573). According to *K. W. Goadby*, it can be perfectly sterilized without damage to it by heating to 75° C. in water for half an hour. The addition of soda to the water, which had been suggested to him, he thought would tend to deteriorate the composition.

**Impression-taking.** The technique of this in plaster was demonstrated in the two best-known methods (by a sectional and an entire tray respectively) by *W. Matthews* and by *H. A. E. Canning* respectively, at an annual meeting of the B.D.A. The former made a cast tray of tin, perforated with a Gartrell's punch, and divided into sections. In this way the impression is removed from the mouth approximately in the same number of pieces as there are numbers of sections to the tray. The various sections of the tray are waxed together with hard wax, forming a complete tray without a handle.

Fill with plaster, introduce it into the mouth, and as soon as the plaster has set, soften the hard wax, uniting sections of tray with a hot knife, introducing the point of the knife between the joints of the section, so as to remove each portion of the tray with its portion of the impression adhering to it. Wax the sections and any fragments there may be together, and cast in the ordinary way.

A compromise between a whole and a sectional tray has been suggested in various forms, the typical one of which may be described as an ordinary smooth tray, having inside one or more ribs formed of narrow strips of metal soldered at right angles to the surface of the tray. The most important rib or strip is one running the whole length of the deepest part of the tray, and so fashioned as to width that teeth may bite upon it when in position, edentulous portions being occupied by a wider (or higher) portion of the strip. If of any considerable depth (or width) this strip should not be of even thickness, but either filed up from a fairly thick strip or built up of two pieces, so as to have a V-shaped cross section, the base being upon the surface of the tray. The idea is that the tray may be easily removed from the plaster when sufficiently set, leaving decided grooves in the plaster for regular fracture. The plan answers excellently as regards

the anterior teeth, where perfection of the model on incisive edges is not so important; but there is a chance of the occlusal surfaces of larger posterior teeth not being absolutely perfect where a very thin layer of plaster covers them. Still, some surprisingly good and perfect impressions have been so taken with great facility.

When sections of the impression are taken from the mouth, and not immediately replaced in the tray, an ingenious form of multiple tray for keeping apart and identifying the pieces while drying has been devised by *F. E. Garner*, and illustrated in *B. D. J.*, XXVI., p. 700.

An old and apparently forgotten method of using plaster for impressions has recently been described, and aroused some interest, consisting in lining a smooth impression-tray with some soft textile fabric, such as muslin or tulle, which supports and keeps in their places the separate fragments when the tray is removed and the impression fractured before taking from the mouth (*B. D. J.*, XXIV., p. 211).

**Indiana Dental Journal.** See Journals.

**Induced electric current** in pulp diagnosis. It is claimed by *W. J. C. Fuyt*, assistant at the Dental Institute of Utrecht (*Nederlandsch Tijdschrift voor Geneeskunde*, January 18, 1903) that by a very weak induced alternating current applied with certain precautions it may be infallibly ascertained whether a pulp is normal, dead, or in a disturbed condition.

**Information.** See Journals.

**Inlays**, as we said last year, are not only being increasingly used, but the work is being made a speciality by some operators. It would be as impossible as confusing to attempt any recapitulation of the current literature on inlays, excepting to say that discussion, passing from a comparison with the ordinary filling methods of obturating accessible cavities of decay, is centred upon the best

materials and procedure of cavity formation and the impression or matrix. Also, although the idea of porcelain is still predominantly associated with the operation, the unexpected durability of the fixing cements, and the comparative immunity to decay at margins as contrasted with that occurring in all-cement fillings, has led to the employment of solid plug inlays of gold, platinum, or their alloys, as stronger and less liable to fracture than porcelain, fixed in place usually by an oxyphosphate cement or gutta-percha.

Indeed, one American writer, *Frank E. Cheeseman* (*Dental Review*), goes so far as to say: 'The subject of gold inlays has not received the attention it should have done, owing to the interest taken in porcelain work. A great many men in the first flush of enthusiasm are inclined to place porcelain inlays in nearly all accessible cavities. I believe a perfect inlay is as good or a better tooth-saver than a perfect filling. Strength should be considered when it does not conflict with the artistic point of view. I have practically abandoned the use of porcelain inlays in all posterior cavities, excepting those in which the completed work would be conspicuous, and in large buccal cavities liable to be affected by the thermal changes, and use gold inlays in all other cavities of this class that I do not fill with gold or plastics.'

This idea has been carried further than a mere cement edge inlay by *Mr. W. F. Mellersh*, of Surbiton, in what he calls the 'sealed gold inlay.' He makes an all-gold plug from a lac impression and plaster model as follows: The lac is heated and removed from the model, which is lined with thin platinum foil, and transferred to a soldering block. Small pieces of pure gold are placed in the foil-lined cavity and fused with a blow-pipe; when full the surface should be somewhat concave. After removal from the plaster the superfluous foil is removed with scissors, and

the trimming completed by grasping the plug with fine roughing pliers, and passing the upper surface over the flat side of a plate file, still grasped in the pliers; a retaining groove is made with a fret-saw such as is used for cutting vulcanite. After the cavity has been undercut the plug is fixed in place with cement, and the whole varnished. At a subsequent visit, after adjusting the rubber dam, a pear-shaped finishing burr is taken, and the surface of the inlay trimmed and made perfectly bright and smooth; with a similar smaller burr a rather deep groove is cut, at the junction of the gold and enamel, immediately over the line of cement. A piece of 'De Trey's' sponge gold of a size to cover the whole inlay is set in place and thoroughly condensed; a perfect union results, and with smaller pieces of the same gold the edges are rapidly and effectually sealed. (*See B. D. J.*, XXIV., p. 719, and for a fuller illustrated description of a slightly modified procedure, *see D. Cos.* for October, p. 1903.)

And it will be convenient to mention here his method of producing contour porcelain inlays by the use of ready-made solid 'cores' of high-fusing English body of various shapes and sizes. Using 'porcelain enamel,' he says (*B. D. J.*, XXVI., p. 176):

'The tooth being prepared, a model is made by burnishing foil into the cavity in the usual way. This is filled with hard wax; resulting model is removed from the cavity and invested in asbestos powder made into a paste with alcohol. When set, the wax is removed and the whole heated to redness to remove all traces of grease. Contour is made by fusing sufficient body in the deep portion of mould to give a flat surface. A core of high-fusing porcelain of suitable size and colour is set in place, and tacked thereto with a little fluid body. When fused, the core does not move, and the filling is rapidly completed.'

by covering core with porcelain enamel of the colour indicated. By this means any desired contour can be obtained with ease and certainty, the tendency of contour fillings to become spheroidal, when built up in the ordinary way, thus being entirely done away with.'

The result is certainly an inlay of great strength and solidity, in which the difficulties of shrinkage are reduced to a minimum.

Inlays have also been made of vulcanized rubber and celluloid, these having even less thermal conductivity than porcelain, and if not so durable in most positions are at least easily removed. The advance during the year in porcelain plug work has been in minor details and the greater facilities afforded for using high fusing material, the advantages of which cannot be disputed.

There is, however, undoubtedly a recent improvement in the lower fusing porcelains, which, in fact, are rather less fusible than before, some makers speaking of them as medium fusing. These have less of the glassy appearance, and should keep their colour better. Notwithstanding that some operators depend upon cement adhesion, and use flat wafer-like plaques in many cases, the majority insist upon the first importance of cavity preparation for the retention of fusion-shaped inlays. On this account there is a tendency to a return to the 'round inlay,' which, of course, are slightly conical short cylinders; or to the employment of the 'rod' form, which can be had either as fused or accurately ground to a right cone of small angle. And there is agreement respecting cavity formation that, not only for retention, but for the best colour effect and the minimum of 'cement shadow,' the cavity may be as deep and as nearly parallel-sided as will admit of removal of matrix or impression. For this reason the slightly conical burrs made for the round or rod porcelain inlays are most excellent for general



fused inlay work where the cavity is accessible to them. Also, a nearly flat floor or floors, described as 'stepped' formation, is to be recommended where possible in preference to a spheroidal concavity shape. There is still a difference of practice as to the swaging of a matrix direct to the cavity, or the taking of an impression, which, if in dental lac, can be very accurate. With almost every method of direct swaging there is a chance of deforming the matrix upon removal. In direct swaging many materials have been used—unvulcanized rubber, amadou, chamois skin (wash-leather), wet cotton, and gum camphor. It is said the latter can be packed very hard, and burns away perfectly clean with alcohol. The latest announcement is that of a special porcelain body so mixed that it can be packed direct into the cavity, removed and fused without a metallic matrix. Undoubtedly the most artistic colour and shade effects are produced by fusing first a rather high-melting dense body, followed by a more transparent one, and finishing, for shade effects, with a third material. Experts assert that the darkening and opacity imparted by the fixing cement can in this way be best overcome. If any doubt exists as to the proper shade of powder to use in mixing the cement of any kind, it has been said that it can be tried first by simply mixing with a little glycerine and water, which (so it is alleged) gives the same final effect as with the cement fluid. If the lately-introduced, slightly translucent cements should be sufficiently adhesive, and assist to overcome the opacity problem in small inlays, it will be an advance. If etching be depended upon for roughening the back, it is well to cover the front with solid paraffin; and as the quality of the acid used is important, see **Hydrofluoric Acid**.

*Mr. Rippons'* method of forming retaining cavities in fused inlays is described in *B. D. J.*, XXIV., p. 817.

*Platschick's* methods of making retaining devices are

fully explained and illustrated in *B. D. J.*, XXVI., p. 737.

**Inlay and Crown Cement.** The increasing popularity of inlays and crowns has brought special cements into existence for this work. One of the dangers associated with cementing inlays and crowns into place is the amount of expansion likely to occur in oxyphosphate cements due to changes taking place during crystallization. This expansion renders the correct adjustment of the bite a frequent trouble in the case of crowns, and disturbs the fit in the case of an inlay. Inlay and crown cement is an oxyphosphate of zinc preparation; the powder is ground to a special fineness, which allows it to be easily and effectively combined with liquid, crystallization taking place with practically no expansion. An extremely dense and durable cement is the result, which it is claimed has special resistance against the oral secretions. For setting crowns, the cement should be mixed to the consistency of putty. In the case of inlays it must be thinly mixed, and the interior of the cavity smeared with it as well as the inlay by means of a camel-hair pencil. This cement can be obtained from Messrs. Ash, Sons and Co.

**Interest, Items of.** *See Journals.*

**International Dental Federation.** *See Societies.*

**International Medical and Dental Congresses.** *See Societies.*

**Interstitial Gingivitis**, the name proposed by Dr. Talbot for 'pyorrhœa alveolaris.'

**Iothion**, which has been recommended by *E. Finger* and *E. Schindler* as a substitute for iodine tincture and iodine ointments, is a slightly-coloured syrupy fluid having a specific gravity of 2.01. It contains nearly 80 per cent. iodine. It is sparingly soluble in water.

**Italiana di Odontoiatria, Revista.** *See Journals.*

**Items of Interest.** *See Journals.*

**Ivory (J. W.).** *See Manufacturers, etc.*

## J.

Jamaica Dogwood. *See* Dogwood.

Jamieson (W. and J.). *See* Manufacturers, etc.

Japan Dental Manufacturing Co. *See* Manufacturers, etc.

Jew and Gentile teeth. *See* Food.

Johnson and Johnson. *See* Manufacturers, etc.

Johnson and Lund. *See* Manufacturers, etc.

Joliot (Alfred). *See* Manufacturers, etc.

Journal für Zahnheilkunde. *See* Journals, etc.

Journal of the British Dental Association. *See* Journals.

Journal of Oral Surgery and Dental Medicine. *See* Journals.

Journals and Periodicals. Dental. Transactions, Proceedings.

There are no new dental journalistic developments at home to be recorded for the past year, excepting that, as we announced in the last edition, the *British Dental Journal* now appears twice instead of once a month. And abroad, though the year was not so prolific as 1904, we have to welcome the official organ of the New Zealand Dental Association, founded at Wellington on June 5.

The journal, splendidly printed, is a quarterly, in double columns, on a page 7 by 9½ inches, the first number, issued in July, having forty pages and several illustrations. The editor of the *New Zealand Dental Journal* is Wm. Ernest Lowe, L.D.S. Eng., D.D.S. Penn., and the subscription, only five shillings, can be sent to Mr. H. P. Rawson, the first president of the Association, Wellington Terrace, Wellington. Business communications and correspondence for the editor to be sent care of A. Hoby, Esq., L.D.S., 104, Willis Street, Wellington.

From France, as a pleasing reminder of recent exchanges of national cordialities, there arrives a new periodical entitled the *Revue de Chirurgie Dentaire*, as the monthly

organ of the French Odontological Society (S.O.F.). It closely resembles in *format* our own Odontological Society's *Transactions*, even to the colour of the wrapper ; but it is to be issued monthly on the 15th, and includes news and general memoranda, with selected advertisements. The editor is Dr. Siffre, and the home subscription of five francs a year, or applications for other information, may be addressed to the Sec. de la Redaction, Mons. A. Barden, S.O.F., Hôtel des Sociétés Savantes, 28, Rue Serpente, Paris. The first number was published in May, 1905.

From the United States we have the *Dentists' Magazine* a handsome well-printed periodical, the first number of which is dated December, 1905. The publishers are the Cogswell Dental Supply Company, of Cleveland, Ohio. The price is not stated.

We mentioned last year the successful establishment of a weekly periodical, appropriately entitled the *Dental Surgeon*, by Messrs. Baillière, Tindall and Cox.

The first number was issued on November 5, 1904, and subsequent numbers have been issued with punctuality, containing many encouraging words from members of the profession testifying to their appreciation of the *Dental Surgeon*, which occupies the distinguished position of being the only weekly dental organ in Great Britain. For further particulars and details see our list following below.

The *Revue Internationale de Prothèse Dentaire*, the first number appearing in September, 1904, and *La Laboratoire*, in the following November, we mentioned last year as being two new journals entirely devoted to mechanical dentistry.

Such alterations as have been notified to us are embodied in our list ensuing :

American Dental Journal, The. Monthly. Vol. IV. *Frink*

- and Young.* 607 to 609, *Masonic Temple, Chicago, U.S.A.*  
15 c. ; \$1 ann.
- American Dentist, The. Monthly.* Vol. VII. *American Dental Publishing Company, Bradford, Pennsylvania, U.S.A.*  
50 c. ann.
- Archiv für Zahnheilkunde. Monthly.* Vol. VI. 9 and 10, *Savigny-Platz, Charlottenburg, Berlin.* 5 marks ann.
- Archives de Stomatologie. Monthly.* Vol. VI. *Dr. R. Nogue, 8, Place de la République, Paris.* 1 fr. ; 10 fr. ann.
- Archives Nationales de Stomatologie et d'Art Dentaire. Monthly.* Vol. XI. *Louis Seigle, 226, Rue Sainte-Catherine ; Bordeaux.* 50 c. ; 5 fr. ann.
- Ash's Quarterly Circular.* March, June, September, December. 5 to 9, *Broad Street, Golden Square, London, W.*
- Australian Journal of Dentistry, The. Monthly.* Vol. IX. *The Australian College of Dentistry and the Melbourne Dental Hospital, 191, Lonsdale Street, Melbourne.* 10s. 6d. ann.
- British Dental Journal (formerly the Journal of the British Dental Association). The Organ of the Association. Monthly.* Vol. XXVI. ; free by post to Members ; to others 6d. ; 13s. ann. 19, *Hanover Square, London, W.*
- British Journal of Dental Science, The. Fortnightly.* Vol. XLVIII. *J. P. Segg and Co., 289 and 291, Regent Street, London, W.* 6d. ; 14s. ann.
- Correspondenz - Blatt für Zahnärzte. Quarterly.* Vol. XXXIV. *C. Ash and Sons, Jägerstrasse 9, Berlin.* 5 marks ann.
- Defense, La. Monthly.* Vol. XI. *Dr. G. Roland, 230, Rue Ste. Catherine, Bordeaux, France.* 1 fr. ; 50 c. ann.
- Dental Brief, The. Monthly.* Vol. X. *L. D. Caulk, S.E. corner Broad and Chestnut Streets, Philadelphia, U.S.A.*  
15 c. ; \$1 ann.
- Dental Clippings. Monthly.* Vol. VII. 506, *Main Street, Houston, Texas, U.S.A.* 50 c. ann.
- Dental Cosmos, The. Monthly.* Vol. XLVII. *The S. S.*

- White Dental Manufacturing Company, Chestnut Street, corner Twelfth Street, Philadelphia, U.S.A.* 20 c.; \$1 ann.
- Dental Digest, The. Monthly. Vol. XI. (*Organ of the Dental Protective Association of the United States.*) J. N. Crouse, 2231, *Prairie Avenue, Chicago, U.S.A.* 35 c.; \$2 ann.
- Dental Era, The. Monthly. Vol. IV. 2009, *South Broadway, St. Louis, Mo., U.S.A.* \$1 ann.
- Dental Hints. Monthly. Vol. VII. *Teague Dental Supply Company, Leonard Buildings, Augusta, Ga., U.S.A.* 50 c. ann.
- Dental Office and Laboratory, The. Once in two months. Vol. XIX. Fourth Series. *Johnson and Lund, 620, Race Street, Philadelphia, U.S.A.* 25 c.; \$1 ann.
- Dental Record, The. Monthly. Vol. XXV. *The Dental Manufacturing Company, Ltd., 6 to 10, Lexington Street, London, W.* 6d.; 7s. 6d. ann.
- Dental Register, The. Monthly. Vol. LIX. *Samuel Crocker and Company, 35 to 39, West Fifth Street, Cincinnati, U.S.A.* \$1 ann.
- Dental Review, The. Monthly. Vol. XIX. *H. D. Justi and Son, 96, State Street, Chicago, U.S.A.* 15 c.; \$1 ann.
- Dental Summary, The. Monthly. (Late, previous to 1902, the *Ohio Dental Journal.*) Vol. XXV. *Ransom and Randolph Company, Toledo, Ohio, U.S.A.* 10 c.; \$1 ann.
- Dental Surgeon, The. Weekly. Vol. II. *Baillière, Tindall and Cox, 8, Henrietta Street, Covent Garden, London, W.C.* 3d.; 13s. ann.
- Dental World, The. Monthly. (Georgia State Dental Society.) Vol. VI. *W. H. Weaver, La Grange, Georgia, U.S.A.* 10 c.; \$1 ann.
- Dentists' Magazine. Monthly. Vol. I. *Cogswell Dental Supply Company, Cleveland, Ohio, U.S.A.*
- Deutsche Monatsschrift für Zahnheilkunde. Monthly. Vol. XXIII. *Arthur Felix, 19, Königsstrasse, Leipzig.* 14 marks ann.



- Deutsche Zahnärztliche Wochenschrift. Weekly. Vol. VIII. 63, *Markgrafenstrasse, Berlin, W.* 8 marks ann.
- Deutsche Zahnärztliche Zeitung. Weekly. *H. Kutzner, 20, Frauenstrasse, Munich.* Free.
- Dominion Dental Journal. Monthly. Vol. XVII. *Nesbitt Publishing Company, Ltd., 44, Adelaide Street West, Toronto, Canada.* \$1 ann.
- Edinburgh Dental Student, The. Monthly. *Dental Hospital, Edinburgh.*
- Giornale di Corrispondenza pei Dentisti. Quarterly. Vol. XXXV. *Via Monte Napoleone II., Milan.* 10 lire ann.
- Indiana Dental Journal, The. Monthly. Vol. VIII. 131, *E. Ohio Street, Indianapolis, U.S.A.* 10 c.; \$1 ann.
- Information. *Wm. Gird Beecroft, D.D.S., Madison, Wisconsin, U.S.A.*
- International Dental Journal, The. Monthly. Vol. XXVI. *The International Dental Publishing Company, 227 to 231, South Sixth Street, Philadelphia, U.S.A.* 25 c.; \$2.50 ann.
- Items of Interest. Monthly. Vol. XXVII. *Consolidated Dental Manufacturing Company, 115, West Forty-Second Street, New York, U.S.A.* 15 c.; \$1 ann.
- Journal für Zahnheilkunde. Twenty-four numbers ann. (irregular). Vol. XIX. 1A, *Chaussée-Strasse, Berlin, N.* 6 marks ann.
- Journal of the British Dental Association. Now the *British Dental Journal.* Which see.
- Journal of Oral Surgery and Dental Medicine, The. Monthly. Vol. II. *Dental Medicine Company, 1122, Broadway, New York, U.S.A.* 12 c.; \$1 ann.
- Laboratoire, La. Monthly. Vol. II. 3 et 8, *Rue Ventadour, Paris, France.* 5 fr. ann.
- Magyar Fogászati Szemle. Monthly. Vol. IX. *Dr. Bauer Samu, Buda Pest, IV., Deak Ferencz-utczu.* 15. 2 korona 50 fillér (mark 2.50).
- Moderna Estomatologia, La. Monthly. Vol. VIII. *Barquillo, 14, 2°, Madrid, Spain.* 12 pesetas ann.

- Monde Dentaire, Le. Monthly. Vol. XIX. *Pau Vasseur*, 9, *Rue de Londres, Paris*. 5 fr. ann.
- New Zealand Dental Journal. Organ of the New Zealand Dental Association. Quarterly. Vol. I. *Care of A. Hoby*, 104, *Willis Street, Wellington*. 5s. ann.
- Norske Tandlaegeforenings Tidende, Den. *Stargarden, Christiania*. 10 kr. ann.
- North-Western Dental Review. U.S.A.
- Odontologie, L'. Fortnightly. Vol. XXXI. *L'École Dentaire de Paris*, 45, *Rue de la Tour d'Auvergne, Paris*. 1 fr.; 10 fr. ann.
- Odontologia, La. Monthly. Vol. XIV. *Calle de Cedaceros 4, Madrid*. 10 pesetas ann.
- Odontologisk Tidskrift. *Storgatan 1, Stockholm*.
- Odontologische Blätter. Fortnightly. Vol. X. *Emil Simonis, Berlin, N. 24, Oranienburgerstrasse 38*. 8 marks ann.
- Oesterreichisch-ungarische Vierteljahrsschrift für Zahnheilkunde. Quarterly. Vol. XXI. *Julius Weiss, 1, Singerstrasse, Vienna*. 6 marks ann.
- Pacific Dental Gazette. Monthly. Vol. XIII. 825, *Market Street, San Francisco, Cal., U.S.A.* 25 c.; \$1.50 ann.
- Penn Dental Journal, The. (Organ of the undergraduates of the Dental Department of the University of Pennsylvania.) Once in two months during term. Vol. VIII. *Dental Hall, University of Pennsylvania, Philadelphia, U.S.A.*, 4 issues 50 cents.
- Progrès Dentaire, Le. Monthly. Vol. XXXII. 22, *Rue du 4 Septembre, Paris*. 10 fr. ann.
- Reflector. Odontological Quarterly Review for Sweden, Norway, Denmark, and Finland. Vol. VI. *Reflector, Göteborg-Sweden*. Swedish full number, 8 marks ann. German Supplement, 5 marks ann.
- Revista Italiana di Odontoiatria. Monthly. Vol. VI. *Largo Carita 6, Naples*. 1 l.; 10 l. ann.

- Revue de Chirurgie Dentaire. Monthly. Vol. I. *Hôtel des Sociétés Savantes, 28, Rue Serpente, Paris. 5 fr. ann.*
- Revue de Dentisterie Appliquée. Monthly. Vol. III. *Société Française de Fournitures Dentaires, 58 bis, Rue de la Chaussée d'Antin, Paris. 10 fr. ann.*
- Revue Internationale de Prothèse Dentaire. Monthly. Vol. II. *20, Rue de la Chaussee-d'Antin, Paris, France. 60 c.; 4 fr. ann.*
- Revue de Stomatologie, La. Monthly. Vol. XII. *G. Steinhil, 2, Rue Casimir-Delavigne, Paris. 10 fr. ann.*
- Revue Odontologique. Monthly. Vol. XXVI. *5, Rue Garancière, Paris. 1 fr.; 10 fr. ann.*
- Schweizerische Vierteljahrsschrift für Zahnheilkunde. Quarterly. Vol. XV. *Société Odontologique Suisse, Zurich. 10 fr. ann.*
- Shikwa-gakuhō. Monthly. Vol. X. *Shikwa-gakuhosha, 9, Misakicho Nichome Kanda, Tokyo, Japan. \$1 ann.*
- Stomatologie, La. Monthly. Organ of the Italian Dental Federation. *Prof. Dr. Platschick, Milan.*
- Stomatologiai Közlöny. Vol. IV. *Budapest VIII., Baross-utca 41.*
- Stomatologist, The. Monthly, from October to May inclusive. *Leo Greenbaum, College Building, Eighteenth and Buttonwood Streets, Philadelphia. 50 c. ann.*
- Tandheelkundig Weekblad. Weekly. *Hoogeinde D., 119, Tiel, Holland.*
- Tandlægebladets. Monthly. Vol. III. *Odense, Denmark.*
- Texas Dental Journal, The. Quarterly. Vol. XXIII. *The A. P. Cary Co., Dallas, Texas, U.S.A. \$1 ann.*
- Tijdschrift voor Tandheelkunde. Monthly. *Amsterdam. 5 guild. ann.*
- Transactions of the New York Odontological Society. *The S. S. White Dental Manufacturing Company, Philadelphia, U.S.A.*
- Transactions of the National Dental Association, U.S.A.

- Yearly to Members only. *The S. S. White Dental Manufacturing Company, Philadelphia, U.S.A.*
- Transactions of the Odontological Society of Great Britain. Usually 8 per annum; free to Members; to others, 2s. 6d. each. *John Bale, Sons, and Danielsson, London.*
- Transactions of the Odonto-Chirurgical Society of Scotland. Annual. *The Dental Manufacturing Company, London.*
- Transactions of the Royal Dental Hospital Students' Society. *The Dental Manufacturing Company, London.*
- Transactions of the School Dentists' Society. Vol. V. *J. P. Segg and Co., London. 6d.*
- Transactions of the Students' Society, National Dental Hospital and College, London. *J. P. Segg and Co., London.*
- Western Dental Journal, The. Monthly. Vol. XIX. *Kettinger Brothers, Manufacturing Company, 918, Walnut Street, Kansas City, Missouri, U.S.A. \$1 ann.*
- Wiener Zahnärztliche Monatsschrift. Monthly. Vol. VII. 1 *Karntnerring 2, Vienna. 10 marks ann.*
- Zahnärztliche Rundschau. Weekly. Vol. XIV. *Berlin, N.W., (23) Claudiusstr. 15. 10 marks ann.*
- Zahnheilkunde. Monthly. Vol. V. *Dr. F. Poppe, Leipsic. 6 marks ann.*
- Zahnkunst, Die. Weekly. Vol. X. *Neue Granßenstrasse 5, Breslau. 20 pf.; 8 marks ann.*
- Zahntechnische Reform, Pawelz's. Fortnightly. Vol. XXIV. 30, *Hohenstaufenstrasse 22, Berlin. 7 marks ann.*
- Zahntechnische Rundschau. Weekly. *Claudiusstrasse 15, Berlin, N.W. Gratis to dental mechanicians.*
- Zeitschrift für Zahntechnik. Monthly. Vol. VI. *Mariahilferstrasse 100, Vienna VII. 8 marks ann.*
- Zoobovrachebny Sbornik (Dentists' Magazine). Quarterly. *Moscow. 4 roubles ann.*
- Zoobovrachebny Vestnik (The Dentists' Messenger). Monthly. Vol. XXI. *A. P. Sinitsin, St. Petersburg. 6 roubles ann.*

**Juries**, Exemption from Service on. Although under the Dentists Act by Section 30 all registered persons are exempt from service upon all juries and inquests whatever, and from all corporate and municipal offices, and in the Militia, it is nevertheless very necessary to make sure from time to time that one's name has not by inadvertence been included by the returning officer upon published lists. After publication upon a list, it is necessary to attend any summons to appear, or commit contempt of court, as the court will require evidence of exemption, and in some cases has refused to grant it immediately, if a delay of justice should thereby be incurred.

**Justi and Son (H. D.).** See **Manufacturers, etc.**

### K.

**Kalodont**, a tooth-paste of some vogue, is said, like many similar ones, to largely consist of liquid glycerine soap.

**Kaolin** (*Bolus Alba*), a white aluminium silicate, being chemically very indifferent, and capable of being reduced to a fine powder, is much better as a vehicle for liquid antiseptic dressings than some in use, such as zinc oxide, which with many agents, such as eugenol, etc., tends to harden into a cement sometimes difficult to remove if required. See **Eugox**. Also as an investment material, *F. Dérud* and *J. Jarricot* (*L'Odontologie*, Paris, September 15, 1903) state that they have carried on a series of experiments in view of obtaining a material for investing purposes better adapted than are those at present in use. They tried several substances, and at last came to the conclusion that of all kaolin possesses the greatest advantages.

**Koelliker et Cie. (P. A.).** See **Manufacturers, etc.**

**Kresamin** (Trikesol ethylene diamine) is an aqueous solution of 25 per cent. trikesol, *i.e.*, a mixture of three isomeric forms of kresol and 25 per cent. ethylene diamine. The latter has been added as an adjuvant since it has been

found that the therapeutic effect of the disinfectant is enhanced by the presence of alkaline and non-corrosive substances which do not irritate the mucous membranes. It is, moreover, a solvent with respect to albumin, mucus, and pus, whereby it enables the trikresol to exercise a deep and energetic action upon pathogenic organisms.

**Kretzschmer (Otto).** *See* **Manufacturers, etc.**

**Krohne and Sesemann.** *See* **Manufacturers, etc.**

## L.

**Laboratoire, La.** *See* **Journals.**

**Laboratory, The Dental Office and.** *See* **Journals.**

**Lac, Dental,** which must not be confused with simple shellac or ordinary sealing-wax (though it much resembles the latter), is introduced in the form of sticks for taking sharp impressions of roots, etc., to be banded, and wherever there is no need for either breakage, 'dragging,' or any kind of elasticity. For this it has been found very satisfactory, and is also used by some for impressions of cavities for which inlays or bridge anchorages are to be made.

**Lactic Acid,** when found in the saliva in undue quantities, as also the alkaline oxalates, but without dental caries, is, according to *Dr. Kirk*, invariably associated with the disorders and aberrations of 'neurasthenia' (*D. Cos.*, XLVI., p. 308).

**Lambert Pharmacal Co.** *See* **Manufacturers, etc.**

**Legal Decisions.** During the past year no fresh legal points affecting the profession have arisen, the Courts having simply confirmed and carried out the several important decisions we reported in the last edition.

Perhaps the most important, as having attracted the attention of the public and the legal profession, led to the Registrar of Joint-Stock Companies in Ireland refusing to register as a dental company under Board of Trade regula-



tions a concern which the Lord Chief Baron designated as 'a fraud.' So far as Ireland is concerned, the ruling would seem to be final that a mandamus compelling such registration may be dismissed.

A satisfactory result of this has been an instruction from the Board of Trade that Registrars shall not accept for registration companies which profess in their 'objects' to give professional services. Also there has been an intimation that the Attorney-General will place no obstacle to a suitable case of company 'fraud' being tried in England.

The leading case now affecting company practice in this country (John Panhans) was, on final appeal in the High Court of Justice, King's Bench Division, on May 13, 1904, before the Lord Chief Justice, Mr. Justice Wills, and Mr. Justice Kennedy, decided against the appellant (Panhans). The appeal was dismissed without the counsel appearing for the British Dental Association against the appeal being called upon to speak. The judgment of the Lord Chief Justice was as follows:

'This gentleman himself inserts the advertisement; he does not put his own name, but he calls himself "The German Dental Institute, 60, Gower Street," and states when consultations may be had, and gives a number of descriptions which, if they applied to an individual, would unquestionably be sufficient to indicate, or to imply, that he was a person specially qualified to practise dentistry. But Mr. Avory contends that, because there is also the notice, "West Central Dental Institute, Limited," and because no name is mentioned, it is not the same thing as if he simply put up "Dentist" on the door, and that he does not come within the Act. I am clearly of opinion the magistrate has come to the only conclusion he could come to, and that there is abundant description to infringe the Dentists Act of 1878.'

**Legislation** during the past few years has only been 'in the air' as concerns the profession. But a very sweeping Amending Act, as the result of several years' cogitation, is now receiving the careful consideration of the Medical and Dental Associations jointly. The proposal is to consolidate the law practically by the repeal of present statutes; and it is not surprising that considerable modification in the draft of new legislation has taken place during the time it has been before the councils and special committees of the representative Associations.

It will be sufficient to say that the proposed short title is 'The Medical Act, 19—,' and that the expression 'Medical Acts' shall include the Dentists Act of 1878. As a general principle, the precedents of the Medical Acts of 1858 and 1886 as affecting all branches of medicine and surgery are followed, instead of that of the Dentists Act, which affected one profession only. This, if finally confirmed, will be of great importance, as concentrating the powers of the General Medical Council in view of certain proposals for distinct University Degrees in Dentistry which might tend to drift away from general medicine. The main points of novelty contemplated are a 'one portal' or State qualifying examination; annual registration and payment of £1 per year, instead of the present single payment of £5; the absolute prohibition of irregular and company practice; and the proposition that all qualified medical practitioners may assume the title of 'doctor.' Should this final proposition be passed, the strict difference in the courtesy titles of 'Dr.' and 'Mr.' will only be between the general and dental practitioner.

It should be particularly noticed that the proposed prohibition of irregular practice, instead of mere prohibition of assumption of title as now obtains, is merely in uniformity with the laws of all other countries, and some

of our Colonies; and was the common law in England before the compromise of 1858.

It may be taken that the proposals as now drafted will finally be modified; but the general tendency and intention of the Bill is upon the lines of recent decisions and the late Midwives Act (2 Edward VII., c. 17), for, as we noted last year, the title of 'midwife' cannot be assumed without due registration after April 1, 1905; and after the same date in 1910 it shall be illegal to habitually practise for gain unless duly certified.

Meanwhile, the undisputed decisions in the High Courts we mention under **Legal Decisions**, some of which were unexpected and would have been deemed improbable a few years ago, are preparing the public and legislative mind for considerable changes.

**Lemale and Co.** See **Manufacturers, etc.**

**Lennon and Tebb.** See **Manufacturers, etc.**

**Lepper, Limited (F.).** See **Manufacturers, etc.**

**Lepper's Dental Warehouse.** See **Manufacturers, etc.**

**Lewis's Medical and Scientific Circulating Library.** See **Libraries.**

**Libraries.** The most considerable collection of dental books in this country available to the profession is the library of the *Odontological Society*, of nearly a thousand volumes, conveniently housed in the rooms of the Society at 20, Hanover Square, London. This, with the use of the reading-room containing the principal dental and medical periodicals, is open on certain evenings in each week to members, students, and those who under the regulations of the Society are properly introduced. Particulars may be obtained of the Hon. Librarian. Small libraries for the use of students are being created at the different dental schools; and a circulating subscription library of dental books and periodicals, including many interesting and rare works and the most recent publications, has been estab-

lished by *Messrs. C. Ash and Sons* at their London headquarters.

Among larger circulating libraries making a speciality of medical and dental literature are: *Lewis's Library*, 136, *Gower Street*, London, and *Prince's Library*, 85, *Praed Street*, London. Some dental books and a number of rare old back numbers of dental periodicals are at the *Patent Office Library*, which is not only rich in all technological works, but is interesting as the first free library—a forerunner of the present free library organization.

We also understand that the arrangements made by the *Times*, in the new book scheme, contemplate the provision of all scientific, special, and technical literature, in addition to that usually circulated by libraries.

**Ligatures.** From time to time it has been recommended to use a wire ligature instead of silk in connection with the application of the rubber dam. The ligature wire prepared for those who adopt the Angle method of regulating will be found extremely useful in many difficult cases where the cavity has a margin extending beneath the gum. The wire can be applied and twisted firm, and then pressed so as to expose all portions of the cavity, the wire remaining in place, which, of course, silk would not do. A mode of using the wire, suggested by Dr. J. M. Thompson, of Detroit, also serves a useful purpose. The wire is first doubled into a loop, and the loop end twisted so as to form a tight rope-like end. The two ends of the wire are then spread apart, then around the tooth, and twisted on the opposite side of the tooth to be filled. This is then cut off, and we now have a twisted loop of wire on both the buccal and lingual aspects. These are so bent as to lie over against the tooth, the rubber is slipped on, and the ends turned back. By this means the rubber can be held even on a short tooth where it would be difficult to use a clamp.—R. OTTOLENGUI, *Items of Interest*.

For rubber dam retention with so flexible a wire, it will be found best to slip upon it one or two small beads, or very short sections of small rubber tubing, at the points where it is to be twisted into a rope end. This spreads and keeps the dam away from a cavity admirably.

**Light Radiations**, or rather the actinic blue and violet rays, are said to exercise a beneficial action on affections of the oral tissues, and to have a slightly local anæsthetic effect. *See Blue Light.*

The red light treatment of small-pox is fairly established; but it is less well known that chronic synovitis with effusion (the pathology of which may be akin to gingivitis) has been cured by ultra-violet light. In the latter cases the exposures lasted for about half an hour.

**Lime-water** has been found an excellent addition (at the moment of using) to correct the acidity of peroxide of hydrogen.

**Liquor Antisepticus.** A most interesting and valuable addition to the new U.S.P. is a lotion which may be taken as an official recognition of many commercial preparations, which will be easily identified by the formula now approved of. This is :

Boric acid	..	..	..	..	20 parts
Benzoic acid	..	..	..	..	1 part
Thymol	..	..	..	..	1 „
Eucalyptol	..	..	..	..	1 „
Oil of gaultheria	..	..	..	..	0.25 „
Oil of thyme	..	..	..	..	0.1 „
Alcohol	..	..	..	..	250 parts

Water to 1,000.  
Filter through talc.

**Local Government Board.** *See Guardians.*

**Logan Fils (Colin).** *See Manufacturers, etc.*

**Lorenz (A.).** *See Manufacturers, etc.*

**Losophan** (Meta-tri-iodo-cresol) is worth trying in root treatment, being a powder containing 80 per cent. of iodine, and freely soluble in alcohol, chloroform, and essential

oils. An allied product called loretin, and much resembling chinosol, is, however, nearly insoluble, but has been used as an iodoform substitute. Such substitutes are almost numberless, but appear to have no advantage—at least, in dental surgery—over iodoform.

**Lysoform.** See **Formaldehyde**; also **Mouth-washes**.

**Lysol**, a speciality in liquid form, produced by the saponification of cresols and the higher phenols. It has been very largely used in antiseptic surgery, and has a high germicidal value. With water, makes a soapy wash for the hands, and is said to give good results in the sterilization of instruments without heating, and not producing rust. Of the kindred coal-tar products, creolin and izal, it has of late perhaps had the preference.

## M.

**Maglactis**, a proprietary preparation similar to emulsions of magnesium hydrate.

**Magnalium**, an interesting and useful alloy of aluminium and magnesium. See **Alloys** and **Aluminium**.

**Magnesia.** *Gabell* and *Austen*, in their valuable 'Materia Medica,' regard magnesium hydro-carbonate as the most efficient direct antacid.

— **Phillips' Milk of**, is stated by the proprietors to be a solution, and not an emulsion, of 24 grains to the ounce of magnesium hydrate. It is also claimed to have neutralizing powers, as tested on lemon-juice, greater than the carbonate, which is in contradiction to the statement of *Gabell* and *Austen*; but the preparation is agreeable, smooth, carefully made, and keeps well. It is useful in taking impressions of the mouth, a teaspoonful allowed to flow over the teeth preventing the adhesion of materials inclined to be sticky, or even of plaster of Paris.

The latter use of this, or of maglactis, is indeed con-



sidered by many as the only service which such preparations render, as there is an undoubted reaction against the employment of alkalies as prophylactics—firstly on the ground of their evanescent effect, and, secondly, on the more important physiological fact that in most cases the secretion of acids is stimulated by the exhibition of alkalies. If this really be true, the old acid mouth-wash of the French official Codex, still used on the Continent, would appear to have some justification. The liquor magnesi boratis, containing about 15 per cent. of boric acid with magnesium carbonate, almost neutral, has been found useful in diphtheria, and is worth trying as an agreeable mouth-wash. Another preparation, magnesi boro-citrate (also known as ‘boracite’), a soluble white powder when dissolved with a little sugar or saccharine, has still greater sterilizing power, and is not the least unpleasant of many recommended mouth-washes.

**Magnesium Perhydrol** is the registered name of a preparation of magnesium peroxide. It is a white powder, insoluble in water, and consists of 15-20 per cent. magnesium peroxide ( $\text{MgO}_2$ ) and 75-85 per cent. magnesium oxide ( $\text{MgO}$ ).

**Magnesium Peroxide**, also introduced as ‘hopogan,’ is one of the many solid basic peroxides tried for root treatment but is insoluble in water.

**Magyar Fogaszati Szemle.** See Journals.

**Mairlot (L.).** See Manufacturers, etc.

**Malakine**, a salicyl-para-phenitidin, has been used for facial neuralgia and odontalgia, internally administered; being insoluble in water, it is best given in cachets, 60 to 90 grains daily, in divided doses.

**Malocclusion.** Little has been added to the summation of the problem in an article by *Kirk* (*D. Cos.*, XLVI.), from which we quote a few sentences:

‘Until within a very recent period the study of mal-

positions of the teeth was a chaotic and bewildering mass of detail. For two centuries at least the point of view was absolutely empirical in the study of this important department. Each case was a special problem, it was said, and as the expressions of malposition apparently varied with each case, ponderous tomes of many pages would scarcely contain the detailed descriptions of the methods and fixtures which have been successfully reported and advocated for their treatment. To those of us who came into dental practice twenty-five years ago, the most discouraging problem was that presented by the department of orthodontia. The attempt to study orthodontia from the cases and appliances described at that time was not unlike the attempt to acquire a knowledge of the Chinese written language, where every word has its individual graphic symbol. It was a mass of detail with no connecting system or order. But in due course this confusing mass of data was made the subject of investigation in a methodical way. The scientific method was applied to its solution, and the underlying principle of the aberrations from normality in the positioning of the teeth was evolved in Angle's dictum that the problems of orthodontia are problems of malocclusion, and that the essential object of orthodontic treatment is restoration of the normal occlusion.'

Dr. Kirk's article, which is devoted to the dictum that malposition of the first molar is the principal factor in malocclusion and irregularity, evidently disregards a very large class of dental deformities which cannot possibly be associated with this. But upon the general treatment of irregularities his concluding statement cannot be disputed. He says:

'And, finally, the bewildering array of regulating fixtures that stand as recorded evidence of our ignorance of the principles of orthodontia are relegated to the lumber-room

of antique and useless ideas, while their place is being taken by a few typical fixtures designed with reference to the classes of irregularities in occlusion which they are intended to correct, and do correct.'

**Malocclusions**, Classification and Nomenclature of. *See* **Orthodontia**.

**Mamelzer**. *See* **Manufacturers**, etc.

**Mandl's Liquid Preparation of Iodine** has become very popular at the London Throat Hospital, as agreeable and stable. Nearly all the liniments and tinctures of iodine are liable to become increasingly acrid, and are generally regarded with aversion by patients as unpleasant. The *pigmentum Mandl* is composed of iodine 6 grains, potassium iodide 20 grains, oil of peppermint 5 minims, and glycerine to make 1 ounce.

**Manhattan Dental Manufacturing Co., The**. *See* **Manufacturers**, etc.

**Manual training**, its importance, and its right place in any educational scheme, is well treated of by *Fremont Burket* (*D. Cos.*, *XLVI.*, p. 550) in critically comparing the opinions of those who, on the one hand, regard as of the greatest importance the early or 'kindergarten' theory, and, on the other, the views of the 'all round' early education advocates, who would postpone all technical training till somewhat later in life. On the first point he says:

'Early training directed towards some especial profession or calling is in accord with Oriental or classical, rather than modern educational, ideals, since it naturally tends to develop one part of a youth's unfolding nature to the detriment of the others, and in the end is dwarfing to the individual. Technical training later on does not have this effect. Hence it must follow that dental education, *as such*, should have no place in the life of a boy before he reaches at least eighteen years of age. Previous to that

time he is being trained for *life*, and the rational, symmetrical development of his threefold nature should be the aim.'

He cites on the other side Sir Michael Foster, that 'the mind grows old very slowly, and can be educated even late in life; but the body becomes old very soon, and it is necessary to train it while it is really young. In general education it is based on the psychological fact that activity is the fundamental law of child-development, and according to the recommendation of Dr. Roy's report,<sup>1</sup> 'studies relating to general culture should not be prolonged beyond the age of sixteen,' so that from there on the boy may have 'gradual manual instruction on the one hand, and elementary scientific instruction on the other.' But he points out (quoting a sentence the source of which is not stated) that 'Manual skill resides not in the hand, but in the brain and mind, and is, in the strictest sense of the word, a part of intellectual training,' as an argument that all the activities of both mind and body should be simultaneously cultivated.

#### **Manufacturers, Dealers, and Dental Depots :**

American Dental Manufacturing Company, 16, *Poland Street, London, W.*

Archer Manufacturing Company, 9-13, *North Water Street, Rochester, New York, U.S.A.*

S. Arthur, *Dental Depot*, 61, *Russell Street, Melbourne.*

Claudius Ash, Sons and Co., Ltd., 5, 6, 7, 8 and 9, *Broad Street, Golden Square, London, W.* *Telegraphic Address: 'Frenes,' London. Telephone: 5258, Gerrard. Branches: Liverpool, 78, Mount Pleasant; Manchester, 118A, Oxford Street; Paris, 22, Rue du Quatre-Septembre; Berlin, 9, Jägerstrasse; Vienna, 2, Spiegelgasse, Ecke Graben; Budapest, Ferencziertek, 4; Hamburg, 62 and 63, Gänsemarkt; Frankfurt a Main, 7, Börsenplatz; Copenhagen, 3, Boldhusgade; St.*

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<sup>1</sup> International Dental Federation.

*Petersburg, 21, Kleine Morskoy ; Christiania, Christian IV. Gade, 13 ; Stockholm, 9, Malmskilnadsgatan ; Moscow, Leontjewski Pereulok, No. 14, House Davidowa ; New York, 30, East Fourteenth Street.*

Barr and Didier, 120, *Tottenham Court Road, London, W.*

Geo. Barth and Company, 54, *Poland Street, London, W.*

Dr. Bengué (Anéstile), 47, *Rue Blanche, Paris.*

Ferd. Benleke, *Ferdmandstrasse 10, Hamburg.*

Thos. Bennett and Son, 70 and 71, *Turnmill Street, London, E.C.*

The Birmingham Dental Supply and Manufacturing Company, Ltd., 113, *Edmund Street, Birmingham.*

M. Blitx, *Invalidenstrasse 14, Berlin N.*

J. J. and T. G. Blundell, 199, *Wardour Street, London, W.*

Boston Dental Depot, Inc., 100, *Boysion Street, Boston, Mass., U.S.A.*

The Buffalo Dental Manufacturing Company, 587 and 589, *Main Street, corner of Chipewa, Buffalo, New York, U.S.A.*

Compañia Dental Española, *Cedaceros, 4, Madrid, Spain.*

The Clark Dental Manufacturing Company, 14, *Temperance Street, Toronto, Ontario, Canada.*

A. C. Clark and Company, 21, *East Randolph Street, Chicago, U.S.A.*

The Cleveland Dental Manufacturing Company, *Cleveland, Ohio, U.S.A.*

Commandit-Gesellschaft Emil Simonis, *Berlin N. 24, Oranienburgerstrasse, 38.*

The Condensed Gas Company, 63, *Grosvenor Street, Manchester. Telegraphic Address : 'Nitrogen, Manchester.' Telephone : 1000.*

Consolidated Dental Manufacturing Company, 115, *West Forty-second Street, New York, U.S.A.*

Contenau and Godart fils, 7, *Rue du Bouloi, Paris.*

Coxeter and Son, 30-32, *Seaton Street, London, N.W.*

Edward Day, 28, *Warstone Lane, Birmingham.*

The Dental Engineering Company, *Roberts' Mews, Hampstead Road, London, N.W.*

The Dental Manufacturing Company, Ltd., 6 to 10, *Lexington Street, London, W.* *Telegraphic Address: 'Fossiline, London.'* *Telephone: 3801, Gerrard.* *Branches: Manchester, 94, Grosvenor Street, All Saints, and 8, Westland Row, Dublin.*

E. De Trey and Sons, 3,943, *Locust Street, Philadelphia, U.S.A.*

C. de Trey and Company, 52, *Shaftesbury Avenue, London, W.*  
Eugene Doherty, 110 and 112, *Kent Avenue, Brooklyn, New York, U.S.A.*

G. Donat, 74, *Shaftesbury Road, Crouch Hill, London, N.*

Eagle Dental Manufacturing Co., *Market and Tenth Streets, Philadelphia, Pa., U.S.A.*

W. Edwards and Company, 19, *Railway Approach, London Bridge, London.*

Electro-Dental Manufacturing Company, 122-124, *South Eighth Street, Philadelphia, U.S.A.*

Elliott and Company, *Hanover Street, Edinburgh.*

Erste Continentale Zahnfabrik.

Felton, Grunwade and Company, *Austral Buildings, 117, Collins Street, Melbourne.*

Fentiman and Company, 2, *Upper East Smithfield, London, E.*  
W. E. Fletcher, 10, *Lower James Street, Golden Square, London, W.*

The Flint Edge Gold Alloy Company, 22, *Henrietta Street, Covent Garden, London, W.C.*

Vve. Jules Friese, 3, *Rue de Londres, Paris.*

Fuhrmann and Company, *Neumarkt 3, Leipzig.*

M. Furmansky and W. Nurick, *Dental Depot, Odessa, Russia.*

A. Gee and Company, 5, *Furnival Street, London, E.C.*

F. W. Gesswein Company, 39, *John Street, New York, U.S.A.*

S. Eldred Gilbert Dental Manufacturing Company, 1,627, *Columbia Avenue, Philadelphia, U.S.A.*

Kaufmann Gynla, *Kerepesi-ut 16 sz. Budapest VII.*



Hallam and Son, 117, *Lisson Grove, London, N.W.*

The Harvard Company, 96, *Great Portland Street, London, W.*

A. Heymen-Billard, L. Lemaire, Sen., 4, *Passage Choiseul, Paris.*

Orlando W. F. Hill, 58, *Berners Street, Oxford Street, London, W.*

Hirschberg and Fels, *Heiligerstrasse 161, Hanover.*

John Hood and Company, 178, *Tremont Street, Boston, Mass., U.S.A.*

The C. H. Hubbard Company, Ltd., 44, *Adelaide Street, West Toronto, Canada.*

Heinrich Hügemann, *Zahnfabrik, Nürnberg, Weissman.*

J. W. Ivory, 51, *North Tenth Street, Philadelphia, U.S.A.*

W. and J. Jamieson, 3, *Upper James Street, Golden Square, London, W.*

Japan Dental Manufacturing Company (the Nihon Shikwa Shosha), 21, *Kamimakicho Nihonbashi, Kanda, Tokyo, Japan.*

Johnson and Johnson, *New Brunswick, New Jersey, U.S.A.*

Johnson and Lund, 514, *Wabash Avenue, Chicago, U.S.A. ; 620, Race Street, Philadelphia, U.S.A.*

Alfred Joliot, 193, *Rue St. Martin, Paris.*

H. D. Justi and Son, 1,301 and 1,303, *Arch Street, Philadelphia, and 96, State Street, Chicago, U.S.A.*

Kleinert Rubber Company, 63, *Basinghall Street, London, E.C.*

P. A. Koelliker et Cie., *Zürich and Geneva.*

Otto Kretzschmer, *Eichendorffstrasse 1, Berlin N.*

A. Kuttner, assayer, refiner, etc., 25, *Gordon Street, Glasgow.*

Lambert Pharmacal Company, *St. Louis, U.S.A.*

Theodore Lemale and Company, 53, *Haymarket, London, S.W.*

Francis Lepper, Ltd., 56, *Great Marlborough Street, London, W., and 21, Cannon Street, Manchester.*

Colin Logan fils, 113, *Rue Réamur (à côté de la Bourse), Paris.*

A. Lorenz, 1, *Königsplatz, Leipzig.*

L. Mairlot, 24, *Place Sainte-Gudule, Brussels.*

- Mamelzer, 40, *Rue Croix-des-Petits-Champs, Paris.*
- F. Marion, 87, *Boulevard Sébastopol, Paris.*
- Stanley W. Marshall and Company, Ltd., 85, *Gracechurch Street, London, E.C.*
- Massachusetts Dental Manufacturing Company, 68, *Eliot Street, Boston, Mass., U.S.A.*
- S. Maw, Sons and Sons, 7-12, *Aldersgate Street, London, E.C.*  
*Telegraphic Address : 'Elwen, London.' Telephone : 232, Bank.*
- Mayer and Meltzer, 71, *Great Portland Street, London, W.*
- Mayer, Meltzer and Jackson, 233, *Lornsdale Street, Melbourne.*
- A. Meisinger, *Deutsch-Amerikanische Zahntechnische Fabrik, Kronprinzenstrasse 5, Düsseldorf.*
- E. Merck, *Chemische Fabrik, 16, Jewry Street, London ; and Darmstadt.*
- August M. Meyer, *A.B.C. Strasse (A.B.C.-Hof), Hamburg.*
- Midland Dental Manufacturing Company, Ltd., 1, *Needless Alley, Birmingham.*
- Midzuhoya, O., 20, *Honcho San-chome, Nihonbashi-ku, Tokyo, Japan.*
- Georg Miller, *Holzmarktstrasse 72, Berlin O.*
- J. Mumford, 5, *Catherine Court, Seething Lane, London, E.C.*
- C. Musgrave, *The City Dental Depot, 15, City Road, E.C.*
- Nakai, Y., 38, *Awajimachi Shichome, Osaka, Japan.*
- Nakazawa Dental Manufacturing Company, 7, *Yamamotocho, Kanda-Ku, Tokyo, Japan.*
- Niemitz and Trelenberg, *Dental Depot, Gänsemarkt 4/5, Hamburg.*
- W. E. O'Neil, 147 Y 151, *Calle Perú, Buenos Aires.*
- Nihon Shikwa Shosha (Japan Dental Manufacturing Company), 21, *Kamimakicho, Nihonbashi, Tokyo, Japan.*
- J. M. Ney and Company, *Hartford, Conn., U.S.A.*
- G. Ott et Cie. (*Société de Française de Fournitures Dentaires*),  
58bis, *Rue de la Chaussée-d'Antin, Paris ; 45, Rue de la République, Lyons.*

- Emil and Oscar Pappenheim, *Kronenstrasse 19/19a, Berlin, W.* ; *Goldschmidgasse 10, Vienna.*
- Victor Pappenheim and Company, *Am Graben 11, Vienna I.* ; *Schadow Strasse 4/5, Berlin, N.W.* ; *Singel 471, Amsterdam.*
- Parke, Davis and Company, 111, *Queen Victoria Street, London, E.C.* ; also at *Detroit, New York, Chicago, etc., U.S.A.* ; *Walkerville and Montreal, Canada* ; *Sydney, Australia, and Simla (Punjaub), India.*
- The Pattison Dental Manufacturing Company, Ltd., 14, *Phillips Square, Montreal, Canada.*
- P. Périé fils, 7, *Place Lafayette, Toulouse.*
- Phoenix Dental Manufacturing Company, 2, *Cockspur Street, London, W.*
- C. J. Plucknett and Company, 28, 29, 30, 37, *Poland Street, London, W.*
- Leonard Porro, 33, *New Cavendish Street, London, W.*
- George Poulson (Hamburg), and at *Rossmarkt 10, Frankfurt A.M.* ; *Prinz Louis Ferdinandstrasse, 1, Berlin, N.W.* ; *Inngmannstrasse, 4, Prague* ; *Kronprinsengade, 1, Copenhagen* ; *Zgoda, 4, Warsaw.*
- Dental Protective Supply Company, 1,101 to 1,104, *Chamlain Building, Chicago, U.S.A.* Branch : 3,818, *Real Estate Building, Philadelphia, U.S.A.*
- The Ransom and Randolph Company, 513, *Jefferson Street, Toledo, Ohio, U.S.A.*
- Reymond Frères, 3, *Rue Petitot, Geneva* ; 44, *Place de la République, Lyons* ; 22, *Rue le Peletier, Paris* ; 69, *Rue de la Croix de Fer, Brussels.*
- L. Riasse, *Fournitures Dentaires*, 97, *Rue Montmartre (Angle Rue Réaumur), Paris.*
- Richter and Hoffmann (*Harvard Dental Manufacturing Company*), *Victoria Strasse 23, Berlin, W.*
- The Ritter Dental Manufacturing Company, *Rochester, New York, U.S.A.*
- George Roberts, 3, *Fairbank Street, Hoxton, London, N.*

Roch fils, 24, *Rue de Rome, Marseilles.*

Fred. Rosser, 13, *Castle Road, Kentish Town, London, N.W.*

A. H. Rutterford, 36, *Cookridge Street, Leeds.*

Schneider and Company, Ltd., 9, *Noble Street, London, E.C.*

Gideon Sibley, 1,214 to 1,220, *Filbert Street, Philadelphia, U.S.A.*

*Branch House : North-west Corner State and Quincy Streets, Chicago, U.S.A.*

Silvinium Artificial Plate Company, 11A, *Wormwood Street, London, E.C.*

Commandit-Gesellschaft Emil Simonis, *Berlin N. 24 Oranienburgerstrasse, 38.*

Victor Simon et Cie., 54, *Rue Lamartine, Paris.*

Smale Brothers, 19, *Great Marlborough Street, London, W.*

Lee S. Smith and Son, *Pittsburg, Pennsylvania, U.S.A.*

Société Chimique des Usines du Rhone, *Saint-Fous, près Lyons.*

Société Française de Fournitures Dentaires, G. Ott et Cie.,  
58bis, *Rue de la Chaussée-d'Antin, Paris ; 45, Rue de la République, Lyons.*

M. S. Sowerby, *Dental Depot, Burke and Wills' Chambers, 145 and 147, Collins Street, Melbourne.*

The Standard Dental Manufacturing Company, *Toledo, Ohio, U.S.A.*

F. Stehr, *Dental Depot, Triest.*

R. Tanner and Company, *Powis Street, Woolwich.*

A. G. Taylor and Company, 17, *Poland Street, London, W.*

The Teague Dental Supply Company, *Augusta, Ga., U.S.A.*

Hermann Thiel, *Dental Depot, Breslau, Germany.*

A. H. Tims and Company, 12, *Poland Street, London, W.*

Traun Rubber Company, 335, *Broadway, New York, U.S.A.*

Andrew Tulloch and Company, *Langlands Park Road, Sidcup, Kent.*

Mr. Percival Turner, *Dental Transfer Agency, 4, Adam Street, Adelphi, London, W.C.*

The United States Dental Manufacturing Company, 206,  
*Starkweather Avenue, Cleveland, Ohio, U.S.A.*

Thomas Walker and Son, 58, *Oxford Street, Birmingham.*

A. B. Walsh and Company, 96, *Poland Street, London, W.*

A. J. Watts Company, 41, *East Twenty-eighth Street, New York, N.Y., U.S.A.*

Weiss and Schwarz, *Singerstrasse 1, Vienna.*

T. B. Welch, 5,919, *Woodbine Avenue, Philadelphia, U.S.A.*

The Western Dental Manufacturing Company, 75, *Queen's Road, Bristol.*

The S. S. White Dental Manufacturing Company, *Chestnut Street, Corner Twelfth, Philadelphia, U.S.A. ; 57, 59, Union Square West, and Windsor Arcade, Fifth Avenue, and Forty-seventh Street, New York, U.S.A. ; 120, Boylston Street, Boston, U.S.A. ; Randolph Street, Corner Wabash Avenue, Chicago, U.S.A. ; 446 and 448, Fulton Street, Brooklyn, U.S.A. ; Prudential Building, Atlanta, U.S.A. ; 507 to 515, Chamber of Commerce, Rochester, U.S.A. ; Calle Victoria 750, Buenos Aires ; Great Morskaja 21, St. Petersburg, Russia ; 110 and 112, Victoria Street, Toronto, Canada.*

Geo. Whiteley, 12, *Nottingham Street, London, W.*

Wienand and Company, *Pforzheim, Bavaria.*

Vve. J. Wirth, 222 to 224, *Avenue Phillipe-Auguste, Paris.*

Y. Yamada, 6, *Honcho Nichome, Nihonbashi-ku, Tokyo, Japan.*

Young Dental Manufacturing Company, *Dexter, Mo., U.S.A.*

Zahnarztliches und Zahntechnisches Warenhaus, *Karntnerstrasse 10, Vienna I. ; Jungmannstrasse 26, Prague II.*

Mikran Zara, 189, *Cornwall Road, London, W.*

Gebrüder Ziegler, *Bergzabern, Pfalz.*

Zimmermann and Company, *Rindermarkt 7, Munich.*

**Marigold** (*Calendula*), though no longer official in England, but retained in the new U.S.P., has as a tincture, simple or compound, lately been highly recommended as of great use in treating lesions of the mouth.

It occurs in many proprietary lotions, and, with boric acid and otherwise flavoured, has given very satisfactory results.

**Marshall** (Stanley W.) and Co. *See* **Manufacturers, etc.**

Make on a large scale a modelling composition for impressions, etc., of uniform reliable quality known as 'Stents.'

**Massachusetts Dental Manufacturing Co.** *See* **Manufacturers, etc.**

This firm have acquired celebrity for a specially excellent nerve broach, which has met with the approval of many operators.

**Massage of the Gums and Oral Region of the Face** has been repeatedly discussed as a valuable routine treatment for pyorrhœa, gingivitis, difficult and painful eruption of teeth, and other troubles. A paper by *Dr. H. L. Belcher*, with several quotations, followed by a discussion, is reported in *D. Cos.*, XLVI., p. 574; see also the same, p. 327.

**Matrix** is a word which now, unfortunately, is somewhat ambiguous when used in the discussion of operative work. Formerly, an artificial wall upon which to mould a filling was meant; but it is so often spoken of as a gold or platinum foil impression of a cavity for inlay making, that some avoidance of this confusion should be sought.

There is no longer any difference of opinion as to the value of the filling matrix in almost all cases except where the cavity does not approach the gingival margin; but it is perhaps more clearly recognised that in all interstitial cases, due separation of the teeth is essential if perfect contact points are to be obtained.

In this direction, the various combinations of matrix and rapid separator are extremely useful, securing at once the space and a support, as well as facility for removal. As compared with the best and latest contour matrix, with separation, it is realized that the early primitive forms of strip matrix were in most cases almost useless, if not actually detrimental. It is still the opinion of eminent operators that in a large proportion of cases



the perfect adaptation of gold or tin at cervical margins cannot be ensured with a matrix, though a plastic material in such positions could be manipulated. But of course the question is only one of absolute rigidity of the matrix. 'Various Matrices and their Uses,' a demonstration by *A. L. Bostock*, is reported in *B. D. J.*, XXVI., p. 701. Respecting the impression matrix of cavities, see **Inlays**.

**Maw, Son and Sons (S.).** See **Manufacturers, etc.**

**Mayer and Meltzer.** See **Manufacturers, etc.**

**Mayer, Meltzer, and Jackson.** See **Manufacturers, etc.**

**Meisinger (A.).** See **Manufacturers, etc.**

**Menthol** (methyl-propyl-phenol hexahydride), found to be so useful and pleasant for many purposes, though still too often regarded as a trivial remedy (possibly because for long credited with antiseptic properties), is recognised as more properly an anæsthetic, which, though mild, is so free from causticity or toxic action, that it can be continued to be applied for an indefinite length of time. Its very slight solubility in water, and the limitations imposed upon its direct application as a solid, have disguised its real value. Though it is soluble in alcohol, ether, chloroform, etc., the most potent form for dental use is when it is liquefied by the curious phenomena of combination with other solids. These singular oily liquids may be made by triturating it with a number of substances, as, for instance, in the following cases :

Menthol, 1 part ; thymol, 1 part.

Menthol, 1 part ; phenol, 1 part.

Menthol, 1 part ; chloral hydrate, 1 part.

Menthol, 3 parts ; camphor, 2 parts.

Menthol, 2 parts ; butyl chloral hydrate, 1 part.

Menthol, 2 parts ; phenol, 1 part ; butyl chloral hydrate, 1 part.

These remarkable permanent liquefactions, applied on

cotton to a cavity, have powerful obtundent properties, and act promptly in relieving odontalgia where the pulp is not actually exposed. It is not known which of the above several combinations, or others, are the most reliable in average cases, as comparative experiment is so difficult. The camphor or the phenol combinations have been the best tried, and either full strength or diluted with mineral oils, or in alcoholic or chloroform solution, are, as 'Tooth-ache Oil,' and under a variety of fancy names, put up and much advertised as infallible cures. The phenol compound, probably the most certain in reducing hyperæsthesia of dentine, should not be given or prescribed for self use, as it is somewhat escharotic if carelessly applied.

**Merck (E.).** See **Manufacturers, etc.**

**Mercurial Stomatitis.** The prevention of that type of stomatitis brought about indirectly by the elimination of mercury through the mucous membrane of the mouth is the subject of a communication by *Dr. J. Almkvist (Münchener med. Woch., February 7, 1905)*. The preventive treatment consists in placing the teeth in as healthy a condition as possible before the mercurial treatment is begun. The gums should be massaged daily, using alcohol in connection with the friction movements. The teeth should be kept scrupulously clean and brushed frequently with the following paste :

Potassium chlorate	...	...	...	...	36 grammes.
Sodium benzoate	...	...	...	...	3 "
Powdered white soap	...	...	...	...	4 "
Sodium bichlorate	}	...	...	... of each	8 "
Glycerine					
Aromatic essences	...	...	...	...	1 gramme.

**Mercurol**, a chemical combination of mercury and nucleinic acid from yeast, is a brownish-white powder containing about 10 per cent. mercury. It dissolves freely in water, especially if warmed, and mixes in this state readily with

fluids containing albumen—*e.g.*, blood-serum—without giving rise to coagulation. The solution of the preparation remains likewise unaffected by the presence of alkalis. Besides this combination, others containing silver, copper, or iron are supplied under the commercial names nargol, cuprol, and ferrinol, which appear, however, so far to have received clinical attention in England and America only.

The antiseptic properties of mercuriol have been tested by *Czaplewski*, who found it to inhibit the growth of *Staphylococcus aureus* and *pyocyaneus*. Dreesman was likewise successful in two cases of empyema of the antrum with injections of a 2 per cent. solution of mercuriol.

**Metal.** See **Spence Metal, Aluminium, Alloys.**

**Meyer** (August M.). See **Manufacturers, etc.**

**Midland Dental Manufacturing Co., The.** See **Manufacturers, etc.**

**Mineral Teeth.** Some improvements in their mineral teeth have been effected during the past year by Messrs. Ash, Sons and Co. A new non-metallic extra short molar has been introduced, which will be welcomed by the mechanician in cases of extremely close bite where a good masticating surface is desirable. These 'wedge molars,' as they are called, are so constructed at the base as to allow the rubber to be run in and to form a solid wedge of vulcanite, from which it is practically impossible to separate the tooth except by fracture. Among other new things are sets of diatoric bicuspid and molars, the individual teeth of which decrease in length as they approach the ramus of the jaw. These are termed 'tapering diatorics.' A new vulcanite tooth of bulbous character, and of great strength and solidity, which can be adapted to either rubber, celluloid, or continuous gum work, is also introduced by this firm.

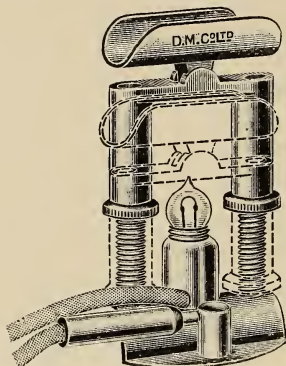
**Moderna Estomatologia, La.** See **Journals.**

**Monatsschrift für Zahnheilkunde, Deutsche.** See Journals.

**Monde Dentaire, Le.** See Journals.

**Moore and Son (E. C.).** See Manufacturers, etc.

**Mouth Illuminator and Prop Combined.** A little device of mounting the small glow-lamps run from an accumulator upon a specially shaped adjustable gag or prop has been arranged by *D. J. Macormac*, as shown in the illustration. The dotted lines show the range of adjustment. In many



MOUTH ILLUMINATOR, ETC.

cases where both hands are employed, and the light can be thrown by this in the proper direction, it should be very convenient. It is made by the Dental Manufacturing Company.

**Mouth-washes.** For routine use in prophylaxis some of the highest authorities advise normal salt solution as physiologically conforming with all requirements, recent research into the action of bactericides or antiseptics pointing to the futility of disinfectants except as deodorants, or perhaps in some cases as stimulating phagocytosis. But it has been almost demonstrated by the published experiments of *Hunt and Jackson* upon their own mouths (*D. Cos.*, XLVI., p. 816), that a temporary sterilization of the mouth may

be obtained by mercuric chloride in the strength of 1 : 2,500 of water. No other of the numerous agents carefully tried, and no higher dilution of the mercury salt, approximated to the results obtained with this. Dr. Hunt says :

‘The taste of mercuric chloride is obnoxious to many persons. In an effort to disguise the flavour and to increase its palatableness, solutions of the drug in the strength of 1 : 2,500 were made with gaultheria water. Later, varying percentages of menthol, thymol, glycerine, and oil of eucalyptus were used. These disguised the metallic taste of the mercuric chloride without, seemingly, affecting its inhibitory action. The following was finally decided on as the formula best suited to our taste :

R	Mercuric chloride (1 : 2,500)	..	..	..	0·400 gm.
	Menthol (1 : 3,000)	..	..	..	0·333 gm.
	Thymol (1 : 10,000)	..	..	..	0·100 gm.
	Oil eucalyptus (1 : 10,000)	..	..	..	0·100 gm.
	Alcohol	..	..	..	30·000 gm.
	Glycerine (1 : 50)	..	..	..	20·000 gm.
	Gaultheria water	..	..	q.s. ad	1000·000 gm.

‘This may be varied at the desire of the user. In my opinion, the mercuric chloride is the only ingredient offering definite inhibitory properties, so that variation in the strengths of the remaining ingredients will neither add to nor subtract from the efficacy of the solution, and may be made with the sole object of pleasing the sense of taste.’

While the above is not suggested as a routine mouth-wash, it appears from some prolonged trials not to have any general injurious effect on the average individual.

For any specific purpose it may be employed without hesitation ; but, undoubtedly, in addition to the chance of toxic accumulation, there is also the unfortunate fact that gold fillings and appliances in the mouth are apt to be tarnished. Nevertheless, the employment of many pleasant washes which have no pretensions to effect an approach

to surgical asepsis do no harm in daily life, and when accompanied by careful and discriminating use of the brush and filament of silk or thread are of moral and disciplinary use. After any operation in which there have been septic complications their prescription is, of course, indicated; but it has been seriously questioned whether the copious and too frequent irrigation of a simple extraction wound, for instance, may not in some cases delay instead of accelerate the natural process of healing.

Broadly, and with few exceptions, the majority of ready-made advertised washes are based upon a solution of boric acid or benzoic acid, or both, with such additions as thymol, eucalyptol, menthol, gaultheria, baptisia, with alcohol (those we have mentioned representing the constitution of listerine), while such other things as hydrastis, calendula, witch-hazel, and the like, are ingredients upon which changes are rung. When it is desired to recommend such a mouth-wash, it is now possible with confidence to prescribe the liquor antisepticus (which see) of the new U.S.P. as a tried and typical example of the class. The celebrated Thiersch's solution is simply about  $\frac{1}{2}$  per cent. of salicylic acid in an aqueous solution of boric acid. This is an exceedingly safe and bland surgical lotion, but not so bactericidal as an equal strength of benzoic acid.

When an astringent action is needed an excellent mouth-wash is tannic acid added to listerine, or the liquor antisepticus. They will mix in equal parts. As only minute traces of formaline can be tolerated frequently by the mucous membrane, its use is much restricted; but, according to Merck's report, the following formula is good:



R	Formalin	..	..	..	..	℥v.
	Tincture of benzoin	..	..	..	..	ʒiij.
	Tincture of myrrh	..	..	..	..	ʒj.
	Oil of peppermint	..	..	..	..	℥iij.
	Oil of anise	..	..	..	..	℥ij.
	Oil of cassia	..	..	..	..	℥j.
	Oil of cinnamon	..	..	..	..	℥xv.
	Alcohol	..	..	..	..	ʒij.

Misce.

Use as a mouth-wash once daily.

But in the form of a formaldehyde potash soap (*see Lysoform*) a tolerable and more highly antiseptic wash can be made.

Another class of washes are the alcoholic solutions of substances insoluble in water (such as salol), for which special claims are made as to a prolonged effect when precipitated on the tissues. A solution flavoured with saccharine, peppermint, clove, etc., resembles odol and sanitol.

The favourite French preparations, Eau de Botot and Pierre's Eau Dentifrice, contain anise, peppermint-oil, cinchona, cassia, rhatany, cloves, etc.

In the treatment of infantile diarrhœa a good antiseptic mouth-wash may be used before feeding, especially when there is vomiting. One of the following formulæ is recommended for the purpose:

R	Oil of peppermint	..	..	..	..	℥xxx.
	Oil of cloves	}	..	..	..	āā ℥xv.
	Oil of gaultheria					
	Glycerin..	..	..	..	..	ʒss.
	Distilled water to make	..	..	..	..	ʒiij.

Or—

R	Boric acid	..	..	..	..	gr. xxx.
	Hydrogen peroxide	..	..	..	..	ʒj.
	Glycerin..	..	..	..	..	ʒss.
	Rose water to make	..	..	..	..	ʒiij.

*Practitioner*, lxix. 507.

The following formulæ, by good authorities, and typical of such prescriptions, are retained from previous editions of the *Dental Annual*:

*For Fætid Breath.*

R	Thymol...	..	..	..	..	gr. viij.
	Spit. vini rect.	..	..	..	..	℥j.
	Glycerinæ	..	..	..	..	℥ss.
	Formol. ..	..	..	..	..	gtt. viij.
	Aquæ ..	..	..	..	..	ad ℥viij.

Misce.

As mouth-wash, especially when fætor is due to decaying teeth.

R	Saccharinæ	}	..	..	..	āā gr. xv.
	Sodii bicarbonatis					
	Acidi salicylici	..	..	..	..	℥j.
	Alcoholis ..	..	..	..	..	℥vjss.

Misce.

A few drops in a tumblerful of water.

Or—

R	Liquor sodæ chloratis..	..	..	..	℥j.
	Aquæ menthæ piperitæ	..	..	..	℥vj.

Misce.

*As Astringents and Stimulants.*

R	Acidi tannici }	..	..	..	..	āā gr. v.
	Mentholi }					
	Tincturæ myrrhæ }	..	..	..	..	āā ℥ss.
	Glycerini }					

Misce, et ft. sol.

*Dr. Mills in D. Cos.*And the following by *Gabell and Austen* :

R	Aluminis..	..	..	..	..	℥j.
	Zinci sulphatis ..	..	..	..	..	℥ss.
	Sodii boratis ..	..	..	..	..	gr. iv.
	Aquæ rosæ ..	..	..	..	..	℥viij.

Misce.

Only to be prescribed for edentulous cases.

R	Zinci sulphatis ..	..	..	..	..	℥j.
	Aquam cinnamomi	..	..	..	..	℥ij.

Misce.

To be diluted with an equal quantity of water.

R	Tincturæ myrrhæ	..	..	..	..	℥j.
	Thymol. ..	..	..	..	..	gr. j.
	Aquam chloroformi	..	..	..	..	ad ℥iv.

Misce.

To be diluted with an equal quantity of water.

As an *antiseptic* and *particularly* in *pyorrhæa* :

R	Thymol .. .. .	gr. iv.
	Benzoic acid .. .. .	gr. xiv.
	Tr. eucalyptus .. .. .	ʒiv.
	Ess. peppermint .. .. .	ʒj.
	Chloroform .. .. .	gtt. xv.
	Alcohol .. .. .	ʒiij.

Misce.

Twenty drops in glass of water used at a time.

*Dr. Good in D. Cos.*

As general antiseptic and disinfecting washes :

R	Glycerin	}	.. .. .	2 parts.
	Hydrogen peroxide solution			
	Rose water .. .. .		.. .. .	1 part.

*Apotheker Zeitung*, xvii. 705 :

R	Tincturæ calendulæ .. .. .	ʒjss.
	Acidi carbolici .. .. .	gr. xl.
	Aquæ .. .. .	q.s. ad fiat ʒviij.

See also **Liquor Antisepticus, Glyco-Thymoline, Milk of Magnesia, etc.**

**Mucin.** This varying constituent of the saliva is considered by *Lohman*, of Cassel (*Archiv für Zahnheilkunde*, June, 1904), as being the principal factor in decay of the teeth. He adduces some striking arguments in support of his theory, which, although dismissed as not worthy of consideration by some pathologists, is taken seriously as deserving full investigation by an editorial in *D. Cos.*, XLVI., p. 1078.

**Mumford (J.).** See **Manufacturers, etc.**

**Musgrave (C.).** See **Manufacturers, etc.**

## N.

'N' rays of *Blondlot*, which are considered by him to accompany most forms of radiation, as light and heat, have been regarded by some writers on radio-therapy as probably the common operative physiological factor in the therapeutics of thermal and other ray treatment. The

alleged close relation between vital phenomena, nerve activity, and the supposed 'N' rays, if the latter can be demonstrated, would account for many discrepancies and uncertainties in the effects of Finsen, 'X,' ultra-violet, and other rays in recorded experiments in their anæsthetic, bactericidal, and curative powers. Such mystery as still may attach to the imagined 'healing touch' would find some glimmer of a physical explanation. But unfortunately, notwithstanding the striking experiments recorded, with photographic confirmation, there is great doubt as to the objective reality of so-called physiological or 'N' radiation, as differentiated from known strictly physical forces. An eminent French writer attributes much of the undisputed alleviations of digital massage in facial neuralgias, gingivitis, periostitis, etc., to such radio-activity; but this must be mere speculation until the existence of the 'N' rays is beyond a doubt.

**Naphthol** (official as beta-naphthol), although an extremely efficient non-toxic antiseptic and germicide (not used quite so much now as when first introduced, when it had quite a vogue in dental surgery), fails in its very slight solubility in water and consequent slightly penetrative power. An interesting viscid liquid, formed by the combination of 1 part naphthol with 2 parts of camphor, is a very powerful non-toxic antiseptic, miscible with most essential oils and many solvents. Its derivative, salicylate of beta-naphthol-ether, known as betol or naphthalol, would be useful if it were not still more insoluble in water. Alcohol solutions are found in some trade mouth-washes. Naphthol must not be confounded with naphthalene, the coal-tar product from which it is made, and known also as alabastrine or albo-carbon and other trade names.

**Narcotile**, a fancy name for a volatile liquid sold for local and general anæsthesia. Has been described as a bichloride of methyl-ethylene, but the exact constitution is not

known. It has a pleasant odour, and acts very like ethyl chloride or somnoform.

**Nargol**, a silver combination with nucleinic acid (one of the so-called organic silver salts) has been used in aqueous solution for ulceration, etc., of the mucous membrane, stomatitis, etc.

**Nasmyth's Membrane.** A new fact concerning this interesting dental structure was communicated as an article by *A. Hopewell Smith* to the first number of the *Dental Surgeon* (November 5, 1904, p. 7). The author had removed from a dentigerous cyst (or follicular odontome, according to Bland-Sutton's classification) a tooth, which upon careful examination was found to be entirely deficient in the enamel cuticle. Hopewell Smith regards this fact as of great importance in the general theory of dental development, arriving at the probability that some cells of the enamel organ play an important part in the genesis of the contents of a dentigerous cyst; and he suggests that a portion of the stellate reticulum may escape atrophy and then undergo centrifugal proliferation. This by death and liquefaction would envelop gradually the whole of the tooth.

**National Dental Association, U.S.A.**, Transactions of. *See Journals.*

**Natrium-kalium**, or the potassium-sodium compound, may be effectively employed for rapid nerve-canal cleansing, where the tooth can be perfectly isolated, as by the rubber dam or otherwise, so that the lips or gums cannot be touched. A mere trace upon a fine nerve-instrument will saponify and disinfect all soft contents, leaving, when well cleared out, the roots quite sterile and dry. It has also given good results in bleaching, though not so thorough as sodium peroxide.

**Naval Candidates.** Requirements of His Majesty's Naval Service as regards the teeth of candidates, issued by the Medical Department of the Admiralty, April, 1899—

(a) Seven teeth defective or deficient in persons under seventeen years of age on the day of entry, ten defective or deficient teeth in persons above the age of seventeen, will disqualify.

(b) Both classes of persons must, however, possess at least four perfectly sound opposing molars, viz., two in each jaw, and the same number of incisors similarly placed.

(c) A tooth is to be considered defective when it cannot be made permanently serviceable by dental repair.

(d) In all cases due regard is to be paid to the condition of the remaining teeth, and their being likely to last for at least twelve years. Credit is to be given for teeth which have not erupted, unerupted wisdom teeth excepted.

(e) Artificial teeth not recognised.

The following Memorandum, dated March 1, 1901, referring to the requirements as regards teeth, has been issued by the Admiralty :

‘ Clause (h) of Article 1,154, Admiralty Instructions, is hereby cancelled, and the following new clause is to be substituted :

‘ (h) Seven teeth defective or deficient in persons under seventeen years of age on the day of entry, ten defective or deficient teeth in persons above the age of seventeen, provided none of them can be rendered serviceable by dental repair ; but both classes of persons should possess some sound opposing molars and incisors.

‘ The numbers of defective teeth given above are intended as a general guide, and are not to be too rigidly adhered to if the remaining teeth are in good condition, or can be made so, and are likely to remain serviceable for at least twelve years.

‘ Credit is to be given for teeth which have not erupted.’

**Nerve Paste**, so called, or devitalizing paste, which appears likely to be largely superseded by the pressure anæsthetic method of immediate extirpation, has no new formula



lately, except that it has been suggested to add adrenalin to the vehicle in order to control the tendency to swelling of the pulp, which is supposed to be the cause of what pain sometimes is occasioned. But, on the other hand, it is by no means unlikely that this addition may also retard the absorption and action of the arsenic. As a vehicle, lanolin has been tried, but has not proved remarkably successful.

A form of arsenical jelly is found to be easily manipulated, while some operators prefer a 'fibre,' which according to Gabell and Austen has the following formula :

℞	Arsenious acid	..	..	..	gr. v.
	Tannin	..	..	..	gr. ij.
	Acetate of morphine	..	..	..	gr. x.
	Carbolic acid enough to make a thin paste.				
	Absorbent cotton-wool, finely cross-cut, q.s.				
	Mix the paste with the cotton-wool and allow to dry.				

Perhaps the most used is the well-tried mixture as follows :

℞	Arsenious acid	..	..	..	2 parts.
	Morphine acetate	..	..	..	1 part.
	Creasote to make a stiff paste.				

A quantity the size of a pin's head is enough to destroy the pulp.

**Nervocidin**, according to Theodore Söderberg, is an alkaloid (hydrochlorate) obtained from the bark of the *gasu-basu* (an East Indian plant), a yellowish, hygroscopic powder. Its exact chemical composition has, however, not as yet been ascertained. It is very soluble in water, slightly soluble in ether and alcohol, and when moistened becomes jelly-like and very sticky. He says :

'Ten grains of nervocidin and 10 grains of cocaine hydrochloride are dissolved in 2 drachms of the fluid of a zinc oxysulphate preparation, viz. :

℞	Gum arabic	..	..	..	5j.
	Zinc sulphate	..	..	..	3ss.
	Water	..	..	..	3j.

'Dissolve the zinc sulphate in the water, then add the

gum arabic ; stir ; let stand for twenty-four hours ; strain. As powder, use uncalcined zinc oxide.

‘The cement was placed in the dried cavity, where it was left for from two to forty-eight hours. A painless preparation of the cavity was the pleasant result. The prepared cavity was next soaked for five minutes with a weak aqueous solution of ammonia to neutralize the acidity of the nervocidin ; it was then dried, soaked for another five minutes with eugenol, and finally filled with gutta-percha or eugox (eugenol-zinc oxide). The teeth thus treated were examined and permanently filled after intervals ranging from a month to a year. Of thirty-five teeth examined to date, all pulps responded to the ordinary tests for vitality and health, and in the vast majority of cases the dentine had returned to distinct sensitiveness, although not to the original state of hypersensitiveness.

‘These results should, then, go far toward proving the accuracy of Professor Arkövy’s opinion that it was not impossible that nervocidin would turn out to be a valuable non-devitalizing agent for the painless excavation of sensitive dentine.

‘Dr. Dalma states, however, that nervocidin did not come up to one of the conditions necessary to win the Herbst prize—viz., full effect after ten minutes’ action.

‘My reason for using cocaine with the nervocidin was to reduce the pain of its application to a minimum.’ (*D. Cos.*, XLV., 631).

**Neuralgia.** Many gratifying cases of prompt relief in facial neuralgia associated with dental irritation by high-frequency electric currents have been reported. *W. Nicholson*, of Cardiff, gives notes of a typical case in *B. D. J.*, XXV., p. 83. Several instances are mentioned of apparently permanent cure of long-standing neuralgias of dental origin, after a number of the usual remedies had failed, by the subgingival injection of alcohol

at 60° C. About 1 c.c. of this is deeply injected into the mucous gingival tissues at the point where the pain seems to originate. The injection produces a pronounced swelling and a burning sensation. Radiation of heat, blue light, Röntgen rays, etc., all seem to have in certain cases cured or greatly alleviated trigeminal irritation. By medication the best results are reported of the compound gelsemium and butyl-chloral taken internally. Tablets of this are sold. The liquid resulting from the reaction of menthol (2 parts) with butyl-chloral (1 part) is a cooling obtundent for external application only or in a retentive cavity. In those unfortunate cases where the exhibition of such drugs as the numerous analgesics, or quinine valarianate, bromides, opium, etc., fail, and the injection of osmic acid, strychnine, alcohol, etc., or the radiation treatments also prove unavailing, then, but not before, serious surgical interference for operations upon the dental or other branches of the nerve may be justified. But it should not be forgotten that such operations, involving, as they usually do, external incisions in the masseteric region and trephining the ramus of the jaw, etc., though occasionally brilliant in results, nevertheless often relapse in a certain time, especially when the Gasserian ganglion has not been removed. The dangers of this and the frequently unfortunate final result should be kept in mind.

**Neurasthenic Manifestations in the Oral Cavity** is the title of a suggestive article by *Greenbaum* (*D. Cos.*, XLVI., p. 96). The author not only enumerates the various well-known conditions met with in the mouths of those with impaired nervous stability, but insists that incipient disorders of the innervation of the muscles of the mouth, lips, and tongue, as the earliest symptoms, are frequently brought to the attention of the dentist long before a physician is consulted for central disturbance. He thinks

it might often be a dentist's duty to advise general examination and treatment when he observes, for instance, marked tremor of the tongue or its impaired mobility. A case, which developed into spinal lesion, is thus noted :

‘ Mr. S., past middle life. Loss of both upper and lower molars necessitated the construction of some mechanical device. About six months later the patient returned, claiming that he experienced difficulty in speaking, which he believed to be due to the presence of plates. Very close examination satisfied me that some other cause than any appertaining to artificial dentures was responsible for the deficiency manifesting itself, and in closely observing the patient I detected a peculiar irregularity in the action of the tongue when speaking, denoting a central nervous lesion. I removed the plates from the patient's mouth, and requested him to return in one week. Upon his return he stated that the absence of artificial teeth was a serious inconvenience to him, emphasizing rather than diminishing his former difficulty of speech. This, to me, was confirmatory evidence of my original suspicion, and I resolved to communicate with his physician. In presenting my view of the patient's condition to the physician, he ridiculed my contention of a central nervous disturbance, as no other manifestation of its presence could be detected, and warned me against disquieting the patient by imparting such a view to him, at the same time suggesting that I make better-fitting plates.

‘ One year later a marked case of spinal disease had developed, and the physician admitted his lack of judgment in not accepting the oral evidence so early developed, and which might have been of inestimable value if utilized at the time of its appearance.’

#### **New Books and New Editions of the Year :**

ORTHODONTIA AND ORTHOPÆDIA OF THE FACE. By Victor Hugo Jackson, M.D., D.D.S., Professor of Orthodontia

in the Dental Department of the University of Buffalo.  
Price 21s. Philadelphia and London: J. B. Lippincott  
Company, 1904.

CLINIQUE DES MALADIES DE LA BOUCHE ET DES DENTS. By  
Drs. C. Godon and E. Friteau, of the Dental School of  
Paris. Second edition. Price 3 *francs*. Paris: J. B.  
Baillièrre et Fils.

THE FILLING OF THE TEETH WITH COHESIVE GOLD. By  
E. C. W. Sandre, Berlinische Verlag Sanstalt, Berlin.  
Price 6 *marks*.

THE NAKED EYE ANATOMY OF THE HUMAN TEETH. By  
Thomas E. Constant, L.R.C.P., L.D.S., M.R.C.S.

PRÉCIS DE RADIOGRAPHIE DENTAIRE. By René Darniezin.  
8vo., with 21 illustrations. Price 3 *francs*. Paris: Vigot  
Frères.

SIMPLE DENTAL YEAR BOOK. Price 10s. 6d.

PRÉCIS D'ANATOMIE DENTAIRE. By Jules Choquet, Dental  
Surgeon of the Faculté de Médecine de Paris. Crown 8vo.  
Pp. 384, with 195 illustrations. Price 8 *francs*.

THE RÔLE OF MODERN DIETETICS IN THE CAUSATION OF  
DISEASE. By J. Sim Wallace, M.D., D.Sc., L.D.S. Price  
2s. 6d. *net*. London: Baillièrre, Tindall and Cox, 1905.

THE DENTAL ANNUAL AND DIRECTORY, 1905. A Year Book  
of Dental Surgery. Price 7s. 6d. *net*. London: Baillièrre,  
Tindall and Cox.

NOTES ON DENTAL PORCELAIN: A PRACTICAL TREATISE  
ESPECIALLY DEVOTED TO THE INTERESTS OF THE BE-  
GINNER. By V. Walter Gilbert, D.D.S. Philadelphia:  
The S. S. White Dental Manufacturing Co.; London:  
Claudius Ash and Sons, Ltd., 1905.

PHARMACOPŒIA AND FORMULARY OF THE ROYAL DENTAL  
HOSPITAL OF LONDON. Price 1s. 6d. London: John  
Bale, Sons and Danielsson, Ltd., 1905.

ON THE CARE OF CHILDREN'S TEETH. London: John Bale,  
Sons and Danielsson, 1905.

A PRACTICAL TREATISE ON ARTIFICIAL CROWN, BRIDGE AND PORCELAIN WORK. By George Evans. Seventh edition, revised and enlarged. Philadelphia: The S. S. White Dental Manufacturing Company, 1905.

THÉRAPEUTIQUE DE LA CARIE DENTAIRE. By Paul Dubois. Fourth edition. Crown 8vo., with 188 illustrations. Price 6 *francs*. Paris: Vigot Frères.

DENTAL MATERIA MEDICA. By Gabell and Austen. Second edition. Ash, Ltd.

DENTAL SURGERY FOR MEDICAL PRACTITIONERS AND STUDENTS OF MEDICINE. By A. W. Barrett, M.B. Lond., M.R.C.S., L.D.S.E, Consulting Surgeon to the London Hospital, and late Lecturer in the Medical School, etc. Fourth edition. Illustrated. Crown 8vo. Pp. 156. (Lewis's Practical Series.) Price 3s. 6*d*. London: H. K. Lewis, Gower Street, W.C., 1905.

ANATOMIE ET PHYSIOLOGIE DE LA BOUCHE ET DES DENTS. By M. M. Wicart and Lemerle. Second edition of Sauvez's work. Foolsap 8vo. Pp. 312. Price 3 *francs*. Paris: Baillièrre et Fils.

THE DENTAL SURGEONS' DAILY DIARY AND APPOINTMENT BOOK, 1906. Post 4to., cloth boards, gilt lettered, 7s. ; interleaved with short ruled or blotting paper, 8s. 6*d*. John Bale, Sons and Danielsson, Ltd.

Niemitz and Trelenberg. *See Manufacturers, etc.*

Nirvanin, a synthetic combination sharing the constitution and properties of orthoform and cocain, intended for local anæsthesia. Has not yet been thoroughly tried, but seems less toxic and more antiseptic than cocain. Is readily soluble in water.

Nitro-glycerin (Glonoin). A very minute dose of this (the best to use is the official liquor trinitrini, one or two drops in water) has been recommended to be given some ten or fifteen minutes before a general anæsthetic is administered.



**Nitrous Oxide.** *See Anæsthesia.*

**Nomenclature.** *See also Stenography, etc.*

Much was made of the subject of nomenclature or terminology at the Congress of 1904 at St. Louis. The chairman of the committee on the subject read a long report, which may be consulted in the *Transactions* or in *D. Cos.*, XLVII., p. 1076. The matter had been standing over from the Congress at Chicago in 1893, and had in the interim received some attention by a committee of the International Dental Federation, who had made suggestions, which were incorporated in the several reports on nomenclature, confined respectively to anatomy, operative work, and departments of prosthetics, such as ceramics, orthodontia, etc. No formal and binding resolutions were come to, but we will epitomize the suggestions which received the greatest support. Quite a battle raged over 'canine' *versus* 'cuspid,' and numerous high authorities with reasoned decisions were quoted on both sides.

Upon this point it seemed difficult to find a way of satisfying the general principle adopted—that the terms in dentistry should conform as far as possible with the usages of the general sciences of zoology, anatomy, physiology, etc., as eminent morphologists and anthropologists seemed at variance. The basis of the discussion was the Report of the American Dental Association Committee on Nomenclature of 1895, which, it was pointed out, had given too many alternative names to have accomplished much uniformity. As to the parts of a tooth, the following terms were considered as conforming with comparative anatomy, descriptive of the molar cusps only :

*Protocone.* The mesio-lingual cone or cusp of the upper molar.

*Paracone.* The mesio-buccal cusp or cone.

*Metacone.* The disto-buccal cusp.

*Hypocone.* The disto-lingual cone.

*Hypoconule.* The fifth tubercle (when present).

*Protoconid.* The mesio-buccal cusp of the lower molar.

*Metaconid.* The mesio-lingual cusp of the lower molar.

*Entoconid.* The disto-lingual cusp.

*Hypoconid.* The medio-buccal cusp of the lower molar.

*Hypoconulid.* The disto-buccal cusp, or fifth cone.

The following terms were recommended for adoption by Professor Dr. Hesse, Leipzig, Germany :

Corona dentis.	Foramen apicis dentis.
Tubercula (coronæ) dentis.	Substantia eburnea.
Collum dentis.	Substantia adamantina.
Radix dentis.	Substantia ossea.
Apex radices dentis.	Canaliculi dentales.
Facies masticatoria.	Spatia interglobularia.
Facies labialis (buccalis).	Prismata adamantina.
Facies lingualis.	Cuticula dentis.
Facies contactus.	Periosteum alveolari.
Facies medialis { Dentium in-	Arcus dentalis superior.
Facies lateralis { cisivorum et	Arcus dentalis inferior.
	Dentes incisivi.
Facies anterior { Dentium præ-	Dentes canini.
Facies posterior { molarium et	Dentes præmolares.
	Dentes molares.
Cavum dentis.	Dens serotinus.
Pulpa dentis.	Dentes permanentes.
Papilla dentis.	Dentes decidui.
Canalis radices dentis.	

As regards the terms used in prosthetic work, Geo. H. Wilson, in the course of a long report, made the following suggestions :

*Prosthesis* instead of *prosthodontia*.

*Tray*, not *cup*, for taking impressions.

*Maxillary surface*. Applied to the inner surfaces of both upper and lower trays and impressions.

*Cast* instead of *model*.

*Denture*. The completed piece.

*Plate*. The base plate only.

*Contour*. Not plumpers.

*Porcelain*. A solidified suspension of one or more insoluble, infusible substances in a fusible silicate, which acts as a flux or bond.

*Vacuum chamber*. Not air-chamber.

*Flasking*. Where a piece of work is enclosed in a flask, as vulcanite and cast work.

*Invest*. When no flask is used, as in solder work.

*Rubber*. While in a soft state, before the application of heat to the sulphur and caoutchouc.

*Vulcanite*. After the application of heat to a mixture of sulphur and caoutchouc ; may be either soft or hard.

*Ferrule* (*fer'-il*). A continuous band about a tooth for sustaining an artificial denture.

The only definite action taken after a long discussion by the Congress was the following resolution :

‘That an International Committee be appointed by the Fédération Dentaire Internationale upon international nomenclature and the preparation of a list of professional terms which shall be interchangeable and translatable into English, German, French, and Spanish ; such committee to report at the Fifth International Dental Congress.’

With the view of discussion upon this we may reproduce the international scheme of *F. D. Weisse*.

Names of the parts of a tooth :

								Symbols.
Corona	..	..	..	..	..	..	..	C
Cervix	..	..	..	..	..	..	..	Cv
Radix	..	..	..	..	..	..	..	R
Apex	..	..	..	..	..	..	..	A
Pulpa	..	..	..	..	..	..	..	P
Cavitas pulpæ	..	..	..	..	..	..	..	Cp
Canalis	..	..	..	..	..	..	..	Cn

Names of the surfaces of a tooth *in situ* :

Opponens, the surface put in opposition	..	..	..	..	..	..	O
Exterior, the outer arch-surface	..	..	..	..	..	..	E
Interior, the inner arch-surface	..	..	..	..	..	..	I
Internus, the arch-surface toward the median line	..	..	..	..	..	..	In
Externus, the arch-surface from the median line	..	..	..	..	..	..	Ex

(a) Designating the side of the median line at which a tooth is located :

Dexter	..	..	..	..	..	..	..	D
Sinister	..	..	..	..	..	..	..	S

(b) Indicating the arch in which a tooth is located :

Superior	..	..	..	..	..	..	..	Sp
Inferior	..	..	..	..	..	..	..	If

(c) Names of the temporary and permanent teeth at each side of the median line in both arches :

(i.) *Dentes temporarii*.

Incisor centralis	..	..	..	..	..	..	a
Incisor lateralis	..	..	..	..	..	..	b

Cuspidatus	..	..	..	..	..	c
Molaris primus	..	..	..	..	..	d
Molaris secundus	..	..	..	..	..	e

(ii.) *Dentes permanens.*

Incisor centralis	..	..	..	..	..	1
Incisor lateralis	..	..	..	..	..	2
Cuspidatus	..	..	..	..	..	3
Bicuspidatus primus	..	..	..	..	..	4
Bicuspidatus secundus	..	..	..	..	..	5
Molaris primus	..	..	..	..	..	6
Molaris secundus	..	..	..	..	..	7
Molaris tertius	..	..	..	..	..	8

A formula of four symbols—three of the above symbols and one of the designative symbol letters or figures—locates a *simplex* pathological condition, cavity, or filling on the crown of a tooth, and gives the position and name of the tooth; the addition of one or more symbols affords a formula for a *complex* pathological condition, cavity, or filling.

**Normal or physiological salt solution**, according to a recent high authority (*Pharm. St. Thomas's Hosp.*), meets every requirement compounded simply thus :

Sodium chloride	..	..	..	..	60 grains.
Water	..	..	..	..	to 1 pint.

Dissolve. This solution contains salt nearly equivalent to 0·7 per cent., and has about the same osmotic equivalent as blood-serum. It is usually sterilized by boiling at least five minutes in a flask, the neck of which is plugged with sterilized cotton-wool.

According to Matthews (*Annals of Surgery* for August, 1904), where accuracy is desirable and time permits, a 'balanced' solution of 0·9 sodium chloride, 0·03 potassium chloride, 0·02 calcium chloride to 100 parts of water may be used; or, if an alkaline solution is desired, 0·75 sodium chloride and 0·25 sodium carbonate to 100 parts of water, the former being the solution recommended for routine use.

Norske Tandlaegeforenings Tidende, Den. *See Journals.*

Notation, Dental. *See Nomenclature, Stenography, etc.*

Nurick (W.) and Furmansky. *See Manufacturers, etc.*

## O.

### Obituary :

Bradshaw (Albany Christie). Died at Bosham, November 26, 1905, from an accidental gun-shot.

Brown (James), *L.D.S.T.* Died in Kimberley Hospital.

Cole (John Fenn). Son of Captain Cole, R.N. Died at Ipswich, May 3, 1905, aged 70. He was one of the earliest members of the British Dental Association.

Ganthony (Robert Davy). Died at Richmond, Surrey, aged 85.

Gray (William Howard). Son of Dr. James Gray of Glasgow. Died in Glasgow in his 48th year. He was dental surgeon to the Royal Infirmary.

Greenfield (John), *L.D.S.* Died April 14, 1905, at Malvern. Mr. Greenfield passed his early years in America. He qualified in 1877, and was an expert in his profession.

Hartnoll (Percy O'Bryan), *L.D.S. Eng.* Was drowned at Bude, July, 4, 1905.

Heath (Christopher), *F.R.C.S., L.L.D. Eng.* Born in 1835; died August 8, 1905. He was educated at King's College School and Hospital, London. Mr. Heath was Emeritus Professor of Clinical Surgery in the University College, London, and in 1895 was elected President of the Royal College of Surgeons, England. He is well known for several works, including his essay on 'The Injuries and Diseases of the Jaws,' etc., for which he received the Jacksonian Prize. At the time of his death had long been Hon. Consulting Surgeon to the Royal Dental Hospital.

Hepburn (David), *L.D.S. Eng.* Born in Edinburgh, 1821; died May, 1905. He was Director of the Dental Hospital

of Edinburgh, and at the time of his death was one of the oldest members of the Odontological Society of Great Britain.

Hepburn (Duncan Stewart), *L.D.S.* Born at Nottingham in 1856. Son of Mr. D. D. Hepburn. Died March 31, 1905. He was a member of the Notts Dental Society.

Hunt (W.), *L.D.S. Eng.* Born at Wincanton; died at Yeovil, Somerset, June 20, 1905, aged 93. Mr. Hunt was the oldest member of the dental profession, and was Vice-President of the College of Dentists in 1860, and the same year was elected member of the Odontological Society. He was the first person out of London to use ether for surgical operations, and amongst the first who used chloroform.

Hurst (A. J.), *L.D.S.I.*, of Londonderry. Died at Bournemouth April 19, 1905.

Jones (Alfred, senr.). Died at Cambridge at the age of 74. He was one of the early presidents of the Eastern Counties Branch in 1884.

Kolliker (Professor Von Albert). Born in Zurich, July 6, 1817; died at Wurzburg, November 1, 1905. Professor Kolliker was a friend and contemporary of the late Professor Virchow, and has written many important works bearing on dental questions of microscopic and comparative anatomy, and embryology.

Nicol (James Main), *L.D.S. Edin.* Died suddenly at Leeds, April 10, 1905, aged 50. He was in practice for nearly thirty years, associated with his uncle, Mr. William Henderson Nicol. Mr. James M. Nicol was secretary of the Benevolent Fund Committee of the North Midland Branch, for which he did excellent work.

Perks (E. C.), *L.D.S.I.*, of 1, Sloane Square, London. Died February 14, 1905.

Poinsot (Paul), Hon. Chairman and Director of the Dental College of Paris. Died November 19, 1905, aged 54.



He was the founder of the *Chambre Syndicate de l'Art Dentaire*, and also one of the founders of *L'École Dentaire* of Paris, where he was Professor of Dental Pathology. He was a frequent contributor to *L'Odontologie*.

Truman (Edwin), *M.R.C.S.* Died April 15, aged 86. He was one of the oldest members of the profession, and in 1855 had the appointment of Dentist to the Royal Household. Mr. Truman, however, was chiefly known as an inventor and investigator in connection with the perfection of the Atlantic cable. He was also one of the oldest book-collectors in London.

**Obtundents** (*see Nervocidin, Local Anæsthesia, etc.*) not involving considerable time and trouble, for either the normal sensibility of dentine or the distressing hyperæsthesia which supervenes in the slightest pulpitis, are being as eagerly sought for as ever, and for everyday work still elude discovery. The high-pressure syringe, by which it is claimed the entire body of dentine may be infiltrated with cocaine, is the nearest approach to the desideratum. The ideal cavity obtundent which shall absolutely abolish the pain of excavation within a reasonable time, and without the prolonged 'treatment' or temporary filling of the cavity, is still to seek.

Comparative tests are extremely difficult to make or classify, as the preliminary procedures adopted for the drying, etc., of the cavity (sometimes painful in themselves) must be estimated and allowed for. Very little advance is to be recorded over the time-honoured application of warm or slightly hot phenol liquid and other coagulants, which have an immediate but very superficial effect.

Many details of excavation are supposed by operators to largely contribute to painless work, such as absolutely sharp new instruments and burs revolving at high speed,

cooled by special precautions, etc. It is said that continually dipping the bur in ethyl chloride (which for the purpose should be contained in a small vacuum-jacketed receptacle near the mouth) is an efficient substitute for the minute spray originally devised.

When the pulp is exposed ever so slightly, and is to be extirpated, the problem is simplified by pressure or so-called electric 'cataphoresis.' But it is the superficial cavities, perhaps far from the central pulp, or the deeper ones where devitalization is undesirable, that present the difficulty. The thorough drying with warm absolute alcohol, and a carefully regulated air-blast, is the common precedent, but cannot with any certainty be done without at least considerable temporary discomfort. The next stage depends upon whether the cavity is deep or superficial; for penetrating obtundents, harmless in the one case, are a danger to vitality in the other. In the former case, for instance, the efficacious solution of zinc chloride in alcohol and chloroform might be dangerous to the pulp in the latter. The hopes entertained of nervocidine (which see) have been discounted by cases of gradual death of the pulp within some months or a year; but the latest reports from France are again strongly in praise of erythrophlein chlorhydrate in eugenol. In all cases where a medicament is supposed to be 'sealed in' by a temporary filling or dressing, it is difficult to differentiate between a specific effect or the natural recovery from sensibility when exposed dentine is protected for a time. The liquefaction products we mention under 'Menthol' are generally, when used quite warm or hot, very rapid obtundents, without any danger to the pulp. Also, saturated solutions of chloretone in one of the essential oils may be applied even when there is exposure feared and it is thought well to try capping. Otherwise, no striking panacea has come to the front since our issue last year.

The formula we gave on the authority of Dr. C. N. Peirce as a safe routine immediate obtundent has upon trial proved fairly satisfactory as follows :

R	Cocaine..	..	..	..	..	gr. v.
	Carbolic acid	..	..	..	..	gr. xx.
	Chloroform	..	..	..	..	ʒss.
	Muriatic acid	..	..	..	..	ʒ℥x.
	Alcohol..	..	..	..	..	ʒij.
	Misce. Use Hot.					

**Obturators.** *See also Cleft Palate.* The fullest recent contribution to the subject was a paper read at the St. Louis Congress by *Calvin S. Case*, which is reproduced with copious illustrations in *D. Cos.*, XLVII., p. 1037. He advocates the employment at first of soft rubber modifications of the Kingsley obturator, to be followed by hard rubber or metal appliances, the construction of which he has simplified and cheapened by a method of utilizing in part the first impressions, moulds, etc. The technique of impression taking, etc., are well described and shown in the paper.

**Occipital Anchorage.** This term of orthodontia denotes the principle of applying the force for retraction of either the upper or lower teeth or the mandible by external traction, obtained by employing caps or straps on the head. The method is well known, and a rather full discussion of its origin and varieties, as well as what is called the intermaxillary anchorage or force, is given by *C. S. Case* in *D. Cos.*, XLVI., p. 346.

**Occlusion.** *See Malocclusion.*

The present tendency in the practice of orthodontia is thus to describe a normal static condition, in terms of which all problems of dental irregularities are stated and viewed as to correction. It is often referred to as the one and only guide in determining the treatment, especially as between the advisability of extraction or not in given cases, though the further development of the specialty

will doubtless recognise the limitations of such a standard.

**Odontalgia.** The local and topical treatment of this when of some standing is rarely immediately successful, and upon the high authority of Dr. Endelman may always be reinforced by large doses of sedatives, such as bromide of sodium in repeated amounts half-hourly (say 10 to 20 grains per hour up to 40 grains in all).

The well-known 'three bromide' mixture is satisfactory for this particular treatment, as recovery from depression is prompter. The systemic aspect of ordinary 'tooth-ache,' from whatever removable cause, cannot be overlooked, as for long after all sources of irritation are suppressed a highly localized neuralgia frequently persists, the 'toothache' which was 'cured' still asserting itself. The whole question of the justifiability of systemic medication in dental therapeutics is well summarized by *Endelman* in *D. Cos.*, XLVI., p. 191.

**Odontoiatria**, *Revista Italiana di.* See **Journals**.

**L'Odontologie.** See **Journals**.

**Odontological Society** of Great Britain. See **Societies**; see also **Grants**.

— **Liverpool District.** See **Societies**.

— **Manchester.** See **Societies**.

— **of New South Wales.** See **Societies**.

— **North of England.** See **Societies**.

**Odontologische Blatter.** See **Journals**.

**Odontologisk Tidskrift.** See **Journals**.

**Office and Laboratory**, *The Dental.* See **Journals**.

**Ohio Dental Journal**, *The* (late); re-named (1902) *The Dental Summary.* See **Journals**.

**Oils**, **Essential**, are often spoken of collectively, as if they so much resembled each other that any one could be employed indifferently for the purpose in view.

This is far from being the case ; in fact, their chemical type and properties vary so much that careful discrimination should be made. For instance, the cinnamon group as aldehydes are stimulating, or even irritant, whereas oil of cloves, the active constituent of which, eugenic acid (commonly called eugenol), is of the phenol series, and sedative while as actively antiseptic. Also, their reactions with other bodies vary as much—as, for example, the solubility of gutta-percha in cajuput oil (a camphor), which is stimulating, and in eucalyptol, which is feebly anæsthetic—show that they have special functions.

The solubility of gutta-percha, and, indeed, of other gums and resins in some of these oils, must be borne in mind when a dressing is sealed in by a temporary filling ; for instance, the 'eugox' temporary dressing is best not used in combination with gutta-percha. On the other hand, the gutta-percha points for root-filling are best inserted after the canal is lubricated with eucalyptol and the slightly-warmed point also first dipped into eucalyptus or a mixture of that with chloroform, which secures rather better adhesion to canal walls. Chloro-percha solution is for most purposes improved by the addition of eucalyptol.

It is often said that teeth are darkened or stained by essential oil treatment, which is true, if the darker oils such as cinnamon are used and not carefully removed from the coronal dentine by chloroform ; but the best brands of eucalyptol and eugenol are almost colourless, though there is theoretically a chance of their oxidizing and darkening if left in dentine.

**Olanodyne**, a special preparation, has been brought forward as a very efficacious liniment in facial neuralgia, and may also be used for pulpitis or pericementitis. But the utmost care is required in the latter case, as it contains such active alkaloids as aconitine, atropine, etc. It may

be diluted with alcohol, chloroform, or oils; it is rapidly absorbed, and in any case must be used sparingly.

**O'Neil** (W. E.). *See* **Manufacturers, etc.**

**Open-faced Crowns.** *See* **Crowns.**

These as originally conceived—that is, with a continuous band at the neck, a window, with the idea of showing as much as possible of natural enamel when it is sound—have, on the whole, not been found satisfactory. Either from want of strength, or the vulnerability of the cement luting, or for other reasons, they are not so much used, either as single restorations or as abutments in bridge-work. An exception may be made for those special cases in which the shape of a sound cuspid or bicuspid, which would otherwise be sacrificed, permits of the entirely open spring or slipper crown being adjusted to them. To carry anchorages for removable bridges they have given satisfaction, especially as in case of displacement or other breakdown they can be readily renewed without having damaged the natural abutment. Very perfect models are, of course, necessary for this particular work.

**Oral Hygiene.** *See* **Hygiene.**

**Oral Manifestations of Central Disorders.** *See* **Neurasthenia.**

**Oral Massage.** *See* **Massage.**

**Oral Sepsis.** Though long known and recognised by dentists, the immense importance of this as an ever-present factor in general health, and more particularly as affecting the operative treatment of regions of or accessory to the alimentary cavities, has but lately engaged the serious attention of the world of medicine. Evidence of the increasing interest in the matter is abundant in recent and progressive medical teaching and literature; and, indeed, at the meeting of the British Medical Association



at Oxford the newly-formed Section found itself discussing the question through a long session.

The impression is certainly conveyed, by the number of allusions in the medical press at the present time to the dangers of dental infection and the great importance of its prevention to the individual and the operative surgeon, that a new and unexplored subject had been discovered. If so, a better understanding between the professions, which we hope for in the future, may do greater justice to the teachings and efforts of the enlightened dentists of the past and present towards prophylaxis and asepsis.

**Oral Sepsis in Childhood.** An article upon the evils attending this condition in children, by *Bessie E. Bennett*, appeared in *D. Digest*, X., p. 955.

**Orthodontia** is becoming, especially in America, developed not only into an important feature of dental practice, but a branch of work in which a number of practitioners are specializing exclusively. This course was advocated by *Dr. E. H. Angle*, by a paper reported in the *D. Digest* (X., p. 307). A Society of Orthodontists meets regularly. The most notable advance in practice is the introduction of the reciprocal anchorage on upper and lower teeth, so that a mutual force of traction is applied for correcting malocclusion by 'jumping the bite' either forwards or backwards. Cases so treated were demonstrated at the annual meeting of the *B.D.A.* last year, and at many branch meetings. This is done by means of band clasps, with or without other attachments, cemented upon the teeth, to which rubber bands can be connected. For instance, in the case of protruding superior incisors, tubular sockets would be mounted upon the band clasps on the superior molars, into which the ends of an expansion arch shaped and placed to impinge on the labial surfaces of the incisors may be                      From a point on this in the first bicuspid

region a rubber band is connected with a posterior band clasp on the inferior molar region; the traction thus provided will act to bring forward the lower teeth, and retract the upper, while the expansion arch, ligatured to place, may expand one or both of the jaws and adjust the cusps of opposing teeth into right occlusion.

This combination will be understood by those acquainted with the Baker anchorage, and the Angle expansion arch, with its adjusting nuts and screws.

An excellent description of the method, with illustrations of restored occlusion, is given by *R. D. M'Bride*, of Dresden, in the *D. Rev.*, XVIII., p. 1029.

A good illustrated study in malocclusion, by *L. S. Lourie*, appears in *D. Rev.*, XVIII., p. 427.

**Orthodontia.** *S. E. Davenport* deprecates extraction, 'to make room,' as very rarely necessary. Spreads or expands by the Coffin plate or modifications, using screws for power frequently in substitution of spring wire. Advocates the use of German silver of the hard variety for constructional purposes except for threads of power screws or strongest spring force. Prefers removable to fixed appliances, and lays stress upon the importance of always avoiding interference with gum tissue. Advocates 'fish-line' ligatures in wedging. Refers to Isaac B. Davenport's use of this, described in *Inter. D. J.*, 1899, p. 586.

A similar good account of treatment of serious malocclusions by the intermaxillary elastic band and Angle's expansion arch is a paper by *Horace L. Howe* in *D. Cos.*, XLVI., p. 1002.

In this country not much has been written upon the subject lately, but there was published in full (*B. D. J.*, XXV., p. 191) a paper by *Stanley Read* on 'A New Method of Regulating,' describing expansion plates actuated by screws, which the author considers superior to springs, and also simple retraction plates.

The literature of orthodontia at present shows some diversity of opinion as to whether fixed or removable appliances are the better ; but there is an agreement that 'skeleton' arrangements, whether cemented on or removable, are preferable to plates covering the teeth. Much stress is laid upon what has been called the 'hygienic retaining-plate,' an arrangement of wires built up and soldered on the model ; and there can be no doubt that, except with an amount of care and cleanliness not to be usually expected of young patients, the wearing of a capping-plate for as long as is often necessary may be highly injurious to the structure of the teeth and margins of the gums.

Immediate regulation (forcible luxation) has recently been publicly demonstrated by *Fred. Lonnon*, who finds in somnoform an anæsthetic particularly suitable for this operation. *See Immediate.*

**Orthoform.** A methyl derivative of benzoic acid was a few years ago much lauded as an antiseptic anæsthetic, but further use has not established the claims made for it, for although a useful dusting powder in burns, etc., the base is almost insoluble, and the hydrochloride with which solutions and liniments were made has proved irritating and toxic in many instances. Alcoholic and glycerine solutions of the pure base are well spoken of, but cases resembling carbolic necrosis have been reported.

**Osmic Acid**, by hypodermic injection, has been found efficacious in facial neuralgia of long standing, especially when complicated with dental origins. Though hardly within the province of the dentist, its employment should at least be advised by him before more serious operative measures are resorted to. The liquor acidi osmici is suitable, 1 or 2 per cent. in water, using 5 to 10 minims. A case of thirteen years' standing in a patient seventy-six years of

age was reported to the American Medical Association, and is reported in *D. Cos.*, XLVI., p. 161.

**Ott et Cie. (G.).** See **Manufacturers, etc.**

**Oxygen** under slight pressure, either alone or as a vehicle for other medicaments, has been thoroughly tried and recommended in the treatment of alveolar abscess, fistular tracts, and pyorrhea by Leger-Dorez, whose monograph translated appears in full in *B. D. J.*, XXVI., p. 6 *et seq.* The paper, though of great theoretical interest, cannot well be abstracted; and we have not learned that the method described has been tried to any extent.

**Oxygen and Gas.** See **Anæsthesia.**

Where oxygen is at hand, under pressure, it should always be resorted to in case of difficult recovery from any anæsthetic, being one of the best cardiac and respiratory stimulants. Even when breathing has ceased, inflation of the lungs by means of a face-piece and oxygen may restore when mechanical means fail.

**Oxygen Compounds.** Many new compounds of the type of the peroxide of hydrogen and of sodium, and of organic compounds, so-called 'peroxides' have lately been introduced as germicides and general antiseptics. Of these, the organic 'peroxides' have no value; but the sodium carbonate peroxide, which may conveniently replace sodium peroxide, and a borax compound, which acts slower, seem to be of use.

The latter, according to *Mr. Eustace H. Gane*, might be sealed up in cavities or roots for bleaching, while the former, as saponifying as the sodium peroxide, is not so explosive or heating in action. Still slower, and more stable, is the calcium peroxide; and as it keeps better when exposed, it is suggested as a component of tooth-powders, and is probably the base of several recently introduced 'oxygen' dentifrices on the market. See *D. Cos.*, XLVI., p. 863.

**Oxyphosphate** cement, according to *G. V. Black*, has no tendency to destroy pulp vitality, and in capping treatment has no specific irritant effect.

**Oxyphosphate** is used by *G. Evans, D. Cos.*, *XLIV.*, p. 24, for taking cavity impressions in inlay work, and making a mould of same material, employing soapstone powder in both cases to prevent adhesion.

## P.

**Pacific Dental Gazette.** *See Journals.*

**Pain, Combating.** A paper read by *J. N. Taylor (B. D. J., XXV., p. 359).* *See also Obtundents.*

**Pappenheim** (Emil and Oscar). *See Manufacturers, etc.*

**Pappenheim and Co. (Victor).** *See Manufacturers, etc.*

**Paris, Assistance Publique.** *See Assistance.*

**Parke, Davis and Co.** *See Manufacturers, etc.*

This firm has a number of specialities carefully prepared for dental use, including adrenalin, chloretone; also very practical hypodermic syringes.

**Parliamentary Inquiry.** The Special Commission appointed to investigate the alleged physical deterioration of the British race, finally took the form of an Inter-departmental Committee, which made its report to Parliament on July 20, 1904, in three large Blue-Books of great interest and value. The first volume, containing the report and certain appendices, costs 1s. 2d.; the second, with minutes of evidence and list of witnesses, 4s. 1d.; and the third 1s. 6d., containing the general index, many tables, photographs, and special matter. As these have not been generally accessible, and in their general conclusions should be widely known and appreciated, we repeat an epitome of their bearings upon the duties and State responsibilities of the dental profession as published by us last year.

The Committee consisted of :

Mr. ALMERIC W. FITZROY, C.V.O., Clerk of the Council (*Chairman*).

Colonel G. M. FOX, H.M. Inspector of Physical Training under the Board of Education.

Mr. J. G. LEGGE, H.M. Inspector of Reformatory and Industrial Schools.

Mr. H. M. LINDSELL, C.B., Principal Assistant Secretary to the Board of Education.

Colonel G. T. ONSLOW, C.B., R.M.L.I., Inspector of Marine Recruiting.

Mr. JOHN STRUTHERS, C.B., Assistant Secretary to the Scotch Education Department.

Dr. J. F. W. TATHAM, M.D., F.R.C.P., of the General Register Office.

Mr. ERNEST H. POOLEY, Barrister-at-Law (*Secretary*).

The original Terms of Reference to the Committee were :

To make a preliminary inquiry into the allegations concerning the deterioration of certain classes of the population, as shown by the large percentage of rejections for physical causes of recruits for the army and by other evidence, especially the Report of the Royal Commission on Physical Training (Scotland), and to consider in what manner the medical profession can best be consulted on the subject with a view to the appointment of a Royal Commission, and the terms of reference to such a Commission, if appointed.

These Terms of Reference were subsequently explained and enlarged as follows :

(1) To determine, with the aid of such counsel as the medical profession are able to give, the steps that should be taken to furnish the Government and the nation at large with periodical data for an accurate comparative estimate of the health and physique of the people ;



(2) to indicate generally the causes of such physical deterioration as does exist in certain classes; and (3) to point out the means by which it can be most effectually diminished.

One of the earliest acts of the Committee, as we announced in the *Annual* for 1904, was to send, through the Clerk of the Privy Council, a communication to the British Dental Association requesting assistance in their deliberations, and in particular asking for a résumé of the Association's Report of 1901 upon the facts elicited by a collective examination of the teeth of school-children, with any further available data concerning the condition of the teeth of the nation.

The Committee forwarded to that body a special report, which will be found in full on p. 351 *et seq.* of the ANNUAL for 1905, and in *B. D. J.*, XXIV., pp. 810-816.

Respecting this Report of the British Dental Association, the Interdepartmental Committee called as a witness, to further elucidate many points, Mr. W. H. Dolamore, the hon. secretary of the Association. His evidence, fully reported as question and answer, occupies several foolscap pages of the Report, vol. ii., and can hardly be quoted in full. The Committee's Report in the first Blue-Book, however, summarizes his evidence as follows:

‘He had no doubt that bad teeth were a condition of the feeding that accompanies high civilization. The ruder and coarser sorts of food at one time in use not only kept the jaw in action during the plastic period of its development, but had the effect of a tooth-brush in keeping the teeth free from the settlement of toxic agents.

‘On the vexed point of the presence of sufficient lime in teeth, Mr. Dolamore agreed that, as a matter of fact, caries is just as often found in teeth with their proper

elements of lime as in teeth which are defective in lime, and stated that, so far as chemical analysis went, there was not much difference between what are called soft and hard teeth; but he seemed to think that investigations into the character of the enamel might produce different results.

‘Though no doubt bad teeth generally accompany deterioration of physique, and are often the result of bad conditions in childhood, there are, happily, no grounds for associating dental degeneracy with progressive physical deterioration. On this point Sir L. Brunton is as emphatic as any other witness, including Mr. Dolamore. It is not a little curious, in this connection, that it was found upon examination of two schools in Edinburgh that the ratio of defective permanent teeth per 1,000 children was 158·2 in the school for children of well-to-do working people, and 273·9 in that for the children of a better class—professional men and merchants. According to Mr. Dolamore, “it is undoubtedly the better-class schools, in my experience, where the teeth are the worst—the higher the class the worse the teeth.” And this appears to be the general opinion.

‘In the result of a recent Admiralty and War Office Interdepartmental Conference on the subject it was held that deterioration of teeth is intimately connected with a variety of intricate causes affecting the general health of the nation, but that malnutrition plays but a very small part in the production of dental caries as compared with the more common use of articles of food which readily undergo acid fermentation, and that it is neglect to keep the mouth clean that is chiefly responsible for the decay of teeth.

‘In this opinion the Committee concur, and they also agree with the recommendations which the Conference

decided to make to the Board of Education on the subject :

- ' 1. That the teaching of the elements of hygiene should be made compulsory in schools, and in this teaching the care of the teeth should receive special attention.
- ' 2. That daily cleansing of the teeth should be enforced by parents and teachers.
- ' 3. That systematic examination of the teeth of children by competent dentists, employed by school authorities, should be practised, where possible, to prevent caries extending, to stop carious teeth, and to remedy defects of the teeth.

' The Committee believe that if to these precautions are added systematic instruction to mothers, through the medium of health visitors, as to the proper food for infants, so that dentition may not be delayed or imperfect, much will be done towards removing a condition of things; which, though it is not an indication of degeneration, contributes to the causes that produce it by the poison dental caries introduces into the system and the gastric disorders that follow therefrom.'

At an earlier stage of the inquiry Professor D. J. Cunningham, President of the Anthropometric Committee of the British Association, was asked: 'From your experience as an anatomist, have you noted any changes in structure unfavourable to development?' He replied: 'No, I have not, except in the one case of the teeth. In other directions I think I might almost say there has been an improvement; but there is no doubt about the teeth. Further, there is evidence that within comparatively recent times this degeneration of the teeth has been proceeding with especial rapidity. Indeed, the increased tendency in the present age to dental caries and to early absorption of the

walls of the sockets in which the teeth are implanted are matters which have recently been attracting very special attention on the part of the medical men.'

There was much said in the course of the general inquiry on the subject of the teeth, on food and its effect upon them, and their condition as a cause or one of many indications of degeneration. Sir Lauder Brunton spoke at considerable length, and the matter was alluded to by Mr. J. Gray (secretary of the Anthropometric Committee of the British Association), Dr. R. J. Collie, Mr. G. H. Fosbroke, Mrs. Watt Smyth (who spoke with much decision and vigour upon infant feeding), Dr. T. M. Legge, Dr. C. R. Browne, Dr. T. F. Young, Dr. Kelly, Lord Bishop of Ross, Miss Maud Garnett, Mr. J. B. Atkins, Sir William Taylor, Major-General Borrett, Sir John Gorst, and many others. The Committee sat on twenty-six days, and examined sixty-eight witnesses. Their Report has been the subject of widespread editorial comment in medical and dental journals; but though full of interesting suggestions, there are no sufficiently sensational or novel ones to rescue it from the usual fate of Blue-Books. The final recommendation on dental hygiene is: 'The Committee are of opinion that the care of the teeth should receive special attention in the teaching of the elements of hygiene in schools, that daily cleansing of the teeth should be enforced by both parents and teachers, and that systematic inspection of the teeth, eyes, and ears of school-children should be undertaken as part of that general medical inspection which has already been recommended.'

In general conclusion: 'The Committee hope that the facts and opinions they have collected will have some effect in allaying the apprehensions of those who, as it appears on insufficient grounds, have made up

their minds that progressive deterioration is to be found among the people generally. At any rate, the Committee believe that their labours will result in giving matter for reflection to those who realize the importance of evidence towards the determination of issues of such uncertainty and complexity, and that these persons, who they would fain hope are the larger portion of the thinking community, will wait the necessary steps being taken to secure that body of well-sifted and accurate information, without which it is impossible to arrive at any conclusion of value as to the general problem.

‘ In the carrying out of their recommendations for the rectification of acknowledged evils the Committee do not rely upon any large measure of legislative assistance ; the law may with advantage be altered and elaborated in certain respects, but the pathway to improvement lies in another direction. Complacent optimism and administrative indifference must be attacked and overcome, and a large-hearted sentiment of public interest take the place of timorous counsels and sectional prejudice.’

There can be no doubt that the prominence given to the dental question in the report has had considerable effect upon the medical and dental profession, and such of the general public as it may have reached ; but the unfortunate fact of so much suggestive matter being buried in a little read Blue-Book is our excuse for republishing so much of what appeared in the ANNUAL last year—in fact, the British Dental Association published late in 1905 a short summary of the dental portions of the evidence similar to our own, which has had some circulation, and the matter has been the text of innumerable articles in the press and papers and discussion in professional circles.

We need only mention, for reference, a most suggestive article by the principal dental witness before the Com-

mission—*Mr. W. H. Dolamore*, in the *B. D. J.*, XXVI. p. 1, with an excellent discussion at the Metropolitan Branch of the B.D.A.; also a paper by *George Cunningham* (*B. D. J.*, XXVI., p. 817). Many presidential addresses at societies and branches of the Association have dwelt upon the subject.

**Pattison Dental Manufacturing Co., Ltd.** See **Manufacturers, etc.**

**Pawelz's Zahntechnische Reform.** See **Journals.**

**Penn Dental Journal, The.** See **Journals.**

**Périé fils (P.).** See **Manufacturers, etc.**

**Periodicals.** See **Journals.**

**Peroxide of Hydrogen** (*Hydrogen Dioxide, Pyrozone, Hydroxyl*).

A solution which is too dilute may be concentrated for any special purpose by evaporation in a shallow vessel, loosely covered with a piece of paper to exclude dust, at a temperature of about 200° F. One ounce of a 3 per cent. strength should concentrate to test at 12 per cent. in thirty minutes. Solutions of greater strength than 10 per cent. should be kept in a bottle, only closed with a cotton-wool plug, and in a dark, cool place. With tightly-stoppered bottles, accidents from explosion are common.

While the value of this solution cannot be overestimated, there has been a slight reaction against the use or abuse of peroxide in full strength being injected into closed cavities, on the ground that its powerful mechanical action carries infection beyond the limits to which otherwise it would have been confined.

*H. Kuhl* recommends as a tooth-paste: Calcium carbonate 5 parts, soap 1 part, rubbed up with glycerine and hydrogen peroxide solution, equal parts, to a suitable consistence. For a tooth-wash: Glycerine 2 parts, hydrogen peroxide solution 2 parts, and rose-water 1 part, are recommended.—*Apotheker Zeitung*, XVII., p. 705.

**Peroxide of Sodium**, a white powder which dissolves in water



with great heat and evolution of oxygen. Has been used for cleansing root canals, but is best applied by carefully mixing it with crushed ice and applying at once, when the nascent oxygen has full action as it is evolved. Thus used, it has given satisfactory results in bleaching teeth.  
*See Oxygen.*

**Phœnix Dental Manufacturing Company.** *See Manufacturers.*

**Phosote**, a creosote phosphate, with less taste and odour than creosote; also

**Phosphotal**, a creosote phosphite, have been used as substitutes for creosote.

**Physical Deterioration in Relation to the Teeth:** a paper read before the British Medical Association at Oxford, by *J. Sim Wallace*; is also reported in abstract in *B. D. J.*, XXV., p. 861. *See also Parliamentary Inquiry.*

**Physiological Salt Solution.** *See Normal Salt Solution.*

**Pin Crown:** superiority over the band crown, from the aseptic point of view, is confidently asserted by *Joseph Head* (*D. Cos.*, XLVI., p. 539). He says:

‘The fitting of a band to the neck of the root under the gum can be likened to the well-known game of drawing a pig on paper with the eyes closed. The general outline of the pig can be drawn with fair accuracy, but the characteristic details are just as hard to get and as frequently lacking as are the fine indentations and curves of the root. Yet, in spite of all these serious objections, no experienced operator will say that the band crown should never be used. In bridge-work or in fractured or badly decayed roots it fills a want that can hardly be filled by any other device. But when we use it let us recognise its dangers as well as its advantages; let us admit that the best-fitting band forms a ledge under the gum that may prove a source of lodgment for infection, and that the seriousness of this danger will depend entirely upon

how cleanly are the habits of the patient, and how prone the oral tissues are to contamination. If, then, it be admitted that the band *per se* has serious objections, it is incumbent upon us to avoid its use in all crowns wherever sufficiently good anchorage can be obtained to obviate the danger either of the loosening of the cement or the fracturing of the root. The author insists that in the great majority of cases a good and sufficient anchorage is obtained by a central pin, with careful fitting to root.

**Platinum, Brittle.** In a 'Note on the Recrystallization of Platinum,' by *Walter Rosenhain, B.A.*, before the *Royal Society*, it is shown that, even when carbonic and all other possible contamination is excluded, perfectly pure platinum, after exposure to high temperature and cold working, becomes of a highly crystalline structure.

**Platinum Solder Fusing** is made very simple by using a cylinder of  $N_2O$  instead of the bellows or compressed air. Attach it to the air-nozzle of the blowpipe, and an S. S. W. tooth, or a small piece of pure platinum, can be fused in a few seconds.—*R. J. HUSBAND, Dominion Dental Journal.*

And now that cylinders of oxygen are frequently kept, a smaller quantity of this suffices for the same purpose.

**Plucknett and Co. (J. C.).** See **Manufacturers, etc.**

**Porcelain**, in all its forms and varieties, from the simple fusible glasses to the more dense and infusible high-grade bodies, has lately assumed an importance in both surgical and prosthetic practice, on account of its great chemical stability and adaptability to the restoration of lost tissues, hard or soft. As a filling material for cavities of decay in teeth, see **Inlays**.

Perhaps the greatest advance in its employment during the past year has been in the wider use of the material in the construction of bridge and small plate work. All the advantages of the continuous gumwork, without many of

the drawbacks accompanying it in full dentures, are found to obtain in partial cases.

Upon a skeleton or frame of hard stiff platinum, which may be completely covered on both lingual and palatal surfaces with the vitreous material, bridge-work and partial plates built up of porcelain present the utmost perfection of prosthetic art, both as to hygiene and æsthetics. The demonstration of this in England by *Jenkins* of Dresden at the B.D.A. meeting is fully reported in the *B. D. J.*, XXVI., p. 489, and succeeding number. *Jenkins* has devised a special material for plate and bridge work, which he calls 'prosthetic porcelain,' and thus describes :

'It is designed only for prosthetic work. Its excess of kaolin, and the way in which that ingredient is treated, gives it a slight opacity which makes it undesirable for inlay work except in rare instances. It begins to melt at 950° C., and if the mass is considerable, the temperature may be continued, at the final fusing, up to even 1,020° C., but this point should seldom be required and never be exceeded. This is sufficiently below the melting-point of gold. In Germany 1,075° C. is accepted as the melting-point of gold, but the experiments of *Hollborn* and *Day* give 1,064-1,065° C. as the correct fusing-point. In any event, prosthetic porcelain fuses at a point sufficiently below the melting-point of gold to give no anxiety as to the effect upon platinum soldered with pure gold.'

Porcelain designed to be fused upon other porcelains and platinum of various degrees of thickness must be not only strong, but it must also be elastic. It must be capable of being fused in the same piece in great masses, or shaded down to finest attenuation. It must possess great strength, great density, and great plasticity. It must perfectly unite with all porcelains, and accommodate itself to varying thicknesses of platinum-iridium without showing

cracks or bubbles. It must be easily worked, and to this end it should melt below the fusing-point of gold. And here let me state what is the chief purpose of prosthetic porcelain. It is designed to unite, still more perfectly, artificial teeth to the base to which they have already been soldered. Such teeth can by its means be completed by filling up any crevice, be built out to any desired extent where the form is deficient, and enormously strengthened where an especial strain comes. Strength, beauty, cleanliness, ease of manipulation, are among its many conspicuous advantages.

By the method I have the honour to present to you, however, not only the exceptionally gifted man, but any ordinarily skilful dentist can accomplish any work in porcelain prosthesis, especially in crown and bridge work, with absolute perfection of form and colour and of indestructible integrity; for he uses his prosthetic porcelain as he has used vulcanite, to pad out and to support and strengthen the teeth and facings which he has been able to select from the great variety which manufacturers of porcelain teeth have placed at his disposal.

At the same meeting, *W. G. Campbell*, of Dundee (*B. D. J.*, XXVI., p. 495), demonstrated and described the latest improvements in materials and methods for using porcelain in 'continuous gum' work.

The comparative strength, density, and fusibility of the various enamels and porcelain bodies upon the market are discussed in an article upon '*Porcelain Art in Dentistry*,' by *Herbert L. Wheeler*, in *D. Cos.*, XLVI., p. 547, with the following conclusions:

'The Jenkins material (referring to his inlay body of two years ago) will stand an average strain of  $32\frac{1}{2}$  lbs., while it will go a little higher—to  $37\frac{1}{2}$  lbs.—if the material be baked so that it rounds almost to a globule and the colour is lost to some extent. Ash and Sons'

low-fusing stood a strain of  $30\frac{1}{2}$  lbs., and their high-fusing 45 lbs., this high average being brought about by one remarkable block, which stood a strain of  $60\frac{1}{2}$  lbs. The Consolidated inlay material, which was originally made by Mr. Whiteley, now with the Dentists' Supply Co., averaging 39 lbs., while the body now made by Mr. Whiteley averages 41 lbs., and the Brewster high-fusing enamel, in which the silica is apparently ground to extreme fineness, averages 19 lbs. The S. S. White high-fusing porcelain averages  $33\frac{1}{2}$  lbs. Parker's body, which is something like the following formula : Spar 4 oz., silex 3 oz., kaolin 1 dwt., would not break, the platinum pins breaking instead. These tests, which were very carefully made by myself at different times, seem to indicate as a whole that the high-fusing, both for strength and for the obtaining of satisfactory colourings, are vastly superior to the low-fusing bodies.'

From direct pyrometer experiments, *Dr. Wheeler* gives the following table of the fusing-points of various commercial porcelain bodies :

Jenkins' enamel	..	..	..	..	1,552° F.
Ash and Sons' low-fusing	..	..	..	..	1,580° F.
Ash and Sons' high-fusing	..	..	..	..	2,084° F.
Consolidated	..	..	..	..	2,084° F.
Whiteley's	..	..	..	..	2,228° F.
Brewster's	..	..	..	..	2,084° F.
The S. S. White Co.'s	..	..	..	..	2,228° F.
Parker's	..	..	..	..	2,588° F.

He concludes that for most cases of inlay work all the materials on the market may be of sufficient strength, and that with some slight modifications the higher the fusing-point of a body, the more certainty of its colour withstanding the heat of baking, and the greater the possibilities of artistic work in those difficult cases where it is necessary to produce a concavo-convex surface in order to carry out a resemblance to the natural teeth.

Porcelain has also been used in general surgery, as

a perfectly inert, unirritating material, for restorations in such operations as a resection of a portion of the mandible.

**Porro (L.).** See **Manufacturers, etc.**

**Poulson (George).** See **Manufacturers, etc.**

**Precipitating Gold.** *Professor Fergus J. McInnes* says that a useful method of obtaining a precipitate of pure gold from any solution containing a mixture of other metals is to make the solution strongly acid by either nitric or hydrochloric acid, then add from 10 c.c. to 100 c.c., according to quantity, of commercial formaline. The action is considerably hastened by gentle heat, and pure gold in a crystalline condition is completely precipitated and separated from solutions containing mercury, zinc, lead, manganese, tin, or arsenic. Platinum is also precipitated by this method, but so slowly that the gold is easily separated from it by decantation.

**Pressure Anæsthesia,** or, more strictly, the induction of local anæsthesia by the forcible application of such agents as cocaine, has been much discussed during the past year in its two forms—viz., the direct application to an exposed pulp by mechanical pressure, and for desensitizing a tooth by hydrostatic pressure of the solution applied in a powerful syringe. It is claimed that through a small orifice drilled through the enamel the entire dentine and pulp can be rendered insensitive for excavation, etc., without injury to vitality. Various forms of syringes have been devised for this, working by screw or lever devices, but the method is not yet much practised in this country. The more direct application to an exposed pulp for painless extirpation is, however, gradually increasing in use as a substitute for arsenical treatment. A full and careful description of the technique by *W. E. Griffin* (*B. D. J.*, XXVI., p. 1093) summarizes the best-known practical methods of this procedure. As illustrating the important rôle played by the physical action of pressure, he says :



'As recently as 1902 *Messrs. Gabell and Austin* wrote in their "Materia Medica for Students," that cocaine is all but useless for obtaining anæsthesia of a tooth-pulp in which there is any vitality, if merely applied to it as a solution or crystals. To-day many men claim that by the use of cocaine they are able to completely anæsthetize the tooth-pulp in three minutes.'

His own experience confirms this, as he adds :

'In my hands the average time required to completely anæsthetize the pulp after exposure has been three minutes, and in some few cases thirty seconds have been sufficient. If the patient arrives with the nerve exposed, and one is unable to treat it with cocaine at once, it should be covered with oil of cloves, sealed in with gutta-percha, or, if the latter is not easily applied, then with carbolized resin ; but this should not be allowed to come in contact with the pulp, as it seems to form a slight coating over it which renders it more resistant to the action of cocaine.'

He uses a crushed crystal of cocaine or Parke-Davis' hypodermic tablets, No. 81, composed of hydrochlorate of cocaine  $\frac{1}{2}$  gr., sulphate of morphine  $\frac{1}{8}$  gr., and sulphate of atropine  $\frac{1}{200}$  gr., conveyed to the point of exposure on a piece of amadou moistened in adrenalin solution, applying the pressure very gradually but continuously with unvulcanized rubber. He concludes :

'I hope we shall realize that cocaine is the only permissible agent for removing the pulp, and that in future we shall entirely discard all forms of arsenic, and so make one step more of progress in the scientific and humane treatment of our patients.'

*F. W. Sage* (*D. Cos.*, XLVI., p. 281) points out that in pulp congestion satisfactory results cannot be expected, and that a somewhat free exposure is desirable. He removes suppurating pulps painlessly after applying, with pressure, cocaine and chloroform ; but does

not advocate this procedure with healthy pulps, as there is great sensitiveness remaining in exploring the canal. He prefers arsenical devitalization, but precedes it with pressure to obtain free exposure.

Many observers report good results with adrenalin and cocaine under pressure.

**Prince** (Thomas), medical bookseller, of 85, *Praed Street, London. W.*, after some years' experience at Lewis's Library, has established a Medical and Dental Lending Library, with the object of supplying all new important publications on scientific subjects.

**Progrès Dentaire**, Le. *See Journals.*

**Protective Supply Co.**, Dental. *See Manufacturers, etc.*

**Protective Association** of the U.S., The Dental. Organ, *The Dental Digest.*

**Pulp, Evolution** of the. *Eugene S. Talbot.* From considerations of comparative anatomy and embryology, dental pulp is regarded as still a transitory structure in human evolution; its variability and imperfect contribution to innervation and nutrition a factor in decay (called a 'natural process of excretion') and interstitial gingivitis.

**Pyorrhœa Alveolaris**, or **Pyorrhœa** [Πύρον, *pus*; ρεω, *to flow*]. *Syn.: Peridental or Pericemental Necrobiosis; Phagadenic pericementitis; Peripyemia; Peridental atrophy; Interstitial gingivitis; Septic gingival catarrh; Rigg's Disease.*

The latest contribution to our knowledge of this and its treatment is the research by *Kenneth W. Goadby* into its bacteriology contributed to the Odontological Society, culminating in a recent contribution to the British Medical Association of 'A Preliminary Note on the Treatment of Alveolar Osteitis (Rigg's Disease) by Means of Vaccine.' These affections, he said, were of several varieties. Among these one class, although not showing signs of acute affection or toxæmia, had many symptoms referable to mouth lesions. Blood examination in such cases

showed distinct though slight anæmia, which did not clear up under the usual general treatment. There was often an acneform eruption on the cheeks and nose. In the alveolar sockets and pus he had found staphylococci, which, however, showed some differences from ordinary *Staphylococcus aureus*. Vaccines were prepared and the cases inoculated. A marked improvement in the opsonic index was observed in individuals so treated, the blood condition improved, and the local affection began to clear up. In a number of the cases the local discharge of pus from the sockets ceased, and the teeth became firm again. The acneform eruption improved, and in one instance a deep acne with pustule formation, associated with Rigg's disease, entirely disappeared. Two cases of chronic nasal suppuration had been treated. One, a chronic antral empyema operated upon four times, and at the time of injection still discharging and causing neuralgic pain, entirely cleared up in three months. In estimating the opsonic index, the most important factor was the time during which the serum was allowed to act. In a series of experiments the number of bacteria taken up by the corpuscles was proportionate to the time in every case, while no alteration was observed in the ratios by using one or three volumes of serum or corpuscles. The lassitude frequent in oral suppuration was rapidly lost under the injections. The treatment promised to be advantageous in treating alveolar pyorrhœa (a notoriously difficult disease to eradicate) by increasing the resistance to the bacteria. Local treatment was, however, by no means to be neglected. Staphylococcal injections were contraindicated in cases of kidney disease owing to the selective action of the bacteria for those organs, as shown by the pyonephrosis and cortical abscesses produced in the rabbits inoculated with the cocci obtained from the pus in the cases described.

Mr. Goadby, in the course of his paper, presented several tables of interest, which, with a full text of the communication, may be found in the *British Medical Journal* of September 9, 1905.

The subject naturally was the theme of several papers and much debate at the Congress at St. Louis, which cannot well be epitomized except to point out that both predisposing constitutional tendencies and a specific infection were the most general theories advanced.

A good summary of the various theories held as to the etiology is given by *A. Hopewell-Smith* in his recent work, reduced by him to three conflicting and mutually excluding views—viz., local irritation, bacterial infection, and constitutional origin. To this must now be added a theory of the origin of pyorrhœa, from long and careful clinical observations, communicated to the French Medical Academy last year (*Bulletin*, November 8) by M. Leger-Dorez, dental surgeon, and reproduced in *L'Odontologie*, who arrives at the conclusion that the etiology is to be sought in some profound functional disturbance throughout the whole system reacting very violently on the dental vascular system. He considers that in all cases the pulp commences a degenerative change, beginning with slight congestion and gradual suppuration. He supports this theory by the observation that in all cases where he has investigated as to the condition of the pulp in all stages of the disease he found a pathological condition indicating that the pulp was either about to mortify, completely dead, or in a state of decomposition. He considers that this view of pyorrhœa accounts for all the symptoms which are observed in every case, and proves that the origin of the subsequent trouble external to the tooth is not to be found in the periosteal ligament or the surrounding tissues, but at the very apex of the root itself, from which point there extends the purulent

decomposition of the pericementum, the alveolus, and gums. A full account of these researches is in *Le Progrès Dentaire*, from January of 1905 and continued.

Should this last theory be substantiated, it will give great weight to the views of those who maintain the incurability of pyorrhœa—at least, by the usual routine methods of alleviation. And it is significant that some practitioners have been led to devitalization of living teeth involved, empirically, as a factor in treatment. On the other hand, it cannot be denied that very different conditions have been studied and reported as cases of pyorrhœa. For instance, *Major Andrew Buchanan, M.D., I.M.S. (B. D. J., XXV., p. 790)*, describes as pyorrhœa the oral conditions of a large contingent of native prisoners of India, who, on removal from famine districts, rapidly recovered.

The only new development in treatment would seem to be tentative attempts and suggestions in the use of the Roentgen X rays, and some experiments with ultra-violet light in combination with adrenalin instead of pressure. *D. Cos., XLV., pp. 498, 947; see also Electrotherapy.*

A large number of references and synopses of theories and treatment will be found in previous issues of the DENTAL ANNUAL.

**Pyrozone.** See **Peroxide of Hydrogen.**

## Q.

**Quarterly Circular, Ash's.** See **Journals.**

**Queensland.** A Bill passed in December, 1904, came into operation last year, and will doubtless do much needed work. Of the Board created, four of the members, not less than two of whom 'shall be medical practitioners, and the remainder of whom shall be dentists, shall be appointed

by the Governor in Council, and shall remain in office for a period of six years.' Three of the members of the Board, all or any of whom may be medical practitioners or dentists, shall be elected by the dentists of Queensland . . . and shall remain in office for a period of three years.

The first Board consists of two medical men and five dentists. At their first meeting each year the members of the Board elect a member to be President of the Board.

**Quillaia Saponaria (Panama Bark ; Soap Bark).** This has been somewhat used in tooth-pastes, both to suspend or emulsify insoluble constituents, and to make a froth or foam ; but as it leaves a slightly bitter acrid after-taste, the solution of soap in glycerine is better.

**Quinine**, as an antiseptic and hæmostatic, is recommended by *Dr. Marx* as having many advantages. He advises the use of a 1 or 2 per cent. solution of the hydrochloride on a compress to arrest hæmorrhages, and states that no unfavourable effects ever follow. Considers it the best agent for parenchymatous bleeding in septic wounds, as its antiseptic power, though slight, is sufficient.

## R.

**Radio-Therapy.** Affections of the mouth and throat (including pyorrhœa) have been treated by 'radiations,' in which must be included application of heat rays, light (either white or of selected wave-lengths), Röntgen rays, and the effects of radium, etc. Radio-active wool has been made by exposing cotton-wool to the 'emanations' of radium, and is said to preserve the property for some time. *See also Electro-Therapy.*

**Ransom and Randolph Co.** *See Manufacturers, etc.*

**Rapid anæsthesia** is perhaps most readily attained by ethyl chloride, twenty to forty seconds usually sufficing. *See Ethyl Chloride.*

**Record, The Dental.** *See Journals.*



**Record-sheet** and chart for bridge-work. *See* **Bridge-work**.

**Recurrence of Decay**, cervical, or at filling margins, where the discoloration of silver nitrate is inadvisable, is said to be prevented as follows: Dry thoroughly, apply 25 per cent. pyrozone for several minutes; dry and apply full strength formalin solution for five minutes; dry and melt a mixture of hard paraffin and salol into the place.

**Reform**, Dental, Pawelz's *Zahntechnische*. *See* **Journals**.

**Register, The Dentists'**. The official list created by the Dentists Act, 1878, directed to be kept by the General Medical Council, and issued at least once a year, is sold for the Council by *Spottiswoode and Co.*, 54, *Gracechurch Street, London*. Price 3s. 4d.

Copies are supplied by the Government to the following public bodies and officials in the United Kingdom:

#### ENGLAND AND WALES.

County Courts.

Coroners.

Law Courts.

Local Government Board, for the use of its several Departments.

Home Office.

Library of the House of Commons.

Library of the House of Lords.

Privy Council Office.

Lunacy Commission.

Directors-General of the Army and Navy Medical Department.

Registrar-General.

Emigration Commissioners.

Registrar of Friendly Societies.

Detective Department, Scotland Yard.

Superintendent of Police, Leeds, and Chief Constable, Chester.

Radcliffe Library, Oxford.

Magistrates' Clerk for the County of Denbigh.

#### SCOTLAND.

The Lord Advocate.

The Crown Agent.

The Clerk of Justiciary.

Sheriff Clerks and Sheriff Clerks Depute.  
Clerks of the Peace.  
Procurators Fiscal.

## IRELAND.

Chancery Court.  
Rolls Court.  
Masters' Court.  
Commissioners in Lunacy.  
Court of Exchequer Chambers.  
Court of Exchequer.  
Court of King's Bench.  
Court of Common Pleas.  
Chairmen of Quarter Sessions.  
Clerks of the Crown and Peace.  
Town Clerks.  
Coroners.  
Petty Sessions Courts.  
Recorders.  
Chairman of Town Commissioners.  
Divisional Magistrates for North and South Dublin.  
The Chief Commissioners of Police, Dublin.  
The Secretary, House of Industry, Dublin.  
High Court of Admiralty, Dublin.

The total number of copies thus supplied is 1,805.

The printed book contains, in full, the Act of 1878, with the amendments made by the Medical Act of 1886, an analysis of the entries according to particular qualifications and classes, and a table of registrable (original and additional) qualifications. For 1905 there were 4,734 names, 2,374 being licentiates of the United Kingdom, 17 having surgical qualifications only, and 28 registered in respect of colonial and foreign qualifications alone.

The Act provides that—

'A copy of the Register of Dentists for the time being, purporting to be printed and published in pursuance of this Act, shall be evidence in all cases (until the contrary be made to appear) that the persons therein specified are registered according to the provisions of this Act; and the absence of the name of any person from such copy shall be evidence (until the contrary be made to appear) that

such person is not registered according to the provisions of this Act. Provided that, in the case of any person whose name does not appear in such copy, a certified copy under the hand of the Registrar of the General Council of the entry of the name of such person in the Dentists' Register shall be evidence that such person is registered according to the provisions of this Act.

Respecting any Order of the Medical Council altering the Register for the time being by the removal or restoration of a name, it was provided by the Medical Act of 1886 that the following shall be evidence :

*' 1. Any copy purporting to be printed by the King's printer, or by any other printer in pursuance of an authority given by the General Council :*

*' 2. Any copy of an order certified to be a true copy by the Registrar of the General Council, or by any other person appointed by the General Council either in addition to or in exclusion of the Registrar to certify such orders.*

(a) **Every Registered Dental Practitioner** should be careful to send the **REGISTRAR** immediate Notice of any change in his Address, and also to answer, without delay, all inquiries that may be sent to him by the **REGISTRAR** in regard thereto, in order that the **CORRECT ADDRESS** may be duly inserted in the **DENTISTS' REGISTER**, otherwise, by Section XII. of the Dentists Act (1878), such Practitioner is liable to have his name erased from the **DENTISTS' REGISTER**.

There is a fee of five shillings for the restoration of a name so erased. *See General Medical Council.*

**Regulating and Regulation.** *See Orthodontia.*

**Removal of Portions of Suspicious Growths or Ulcers in the Mouth for Microscopical Examination,** The. *T. Law Webb* earnestly advises, when malignancy is to be ascertained, that a deep enough specimen should be removed, to facilitate which he describes an appliance consisting of a slightly curved glass tube about three-eighths of an inch in diameter, into which, by suction, a papilla of mucous membrane can be drawn, easily cut off, and secured.

**Removing Cemented-in Crown or other Pins by Chemical**

Means. *Dr. Pepperling* uses ammonia-water for dissolving cement when the rubber dam can be applied to protect the patients from inhaling the irritating fumes. An hour or more may be required, according to the solubility of the cement. *See also Crowns* for a new pin extractor.

**Repairing Rubbers.** After a long series of experiments, three excellent repairing rubbers, pink for facing, and brown and black for base, have been produced, which permit of rapid vulcanization at a temperature quite within the limits of safety. The time required for vulcanizing is thirty-five minutes at 320° F., or 150° C., or 128° R. This represents something like 40 pounds pressure to the square inch less than is recommended for other quick-vulcanizing rubbers. Fifteen minutes should be allowed for raising the temperature to 320° F., or 150° C., or 128° R.; then thirty-five minutes for the vulcanizing process, and ten minutes for cooling down, or just one hour from start to finish. If these directions are faithfully followed, freedom from porosity or any other undesirable condition is guaranteed. These rubbers are manufactured by Messrs. Ash, Sons and Co.

**Research.** *See Grants in Aid.*

**Review, The Dental.** *See Journals.*

**Revue de Stomatologie, La.** *See Journals.*

**Reymond Frères.** *See Manufacturers, etc.*

**'Rheumatin,'** according to *Pieper* (*Munch. Med. Woch.*, July 15, 1903), gives excellent results in trigeminal neuralgia. It is a new salicylic acid salt of quinine, a tasteless white powder, sparingly soluble, best given in cachets every hour to 4 grammes daily. Has no unpleasant effect after prolonged administration.

**Rhigoline, or Rhigolene.** A very light petroleum spirit with a boiling-point between 20° and 40° C., formerly used as a refrigerating spray.

**Riasse (L.).** *See Manufacturers, etc.*

**Richmond** or **shell crowns**, or gold portions of structures, imperfectly soldered, or having minute pits, holes, or cracks, may, according to *McCurdy* (*D. Cos.*, XLIV., p. 376), be perfected without resoldering (out of the mouth) by packing imperfection with amalgam of gold foil and mercury, and heating over Bunsen flame.

**Richter** and **Hoffmann** (*Harvard Dental Manufacturing Company*). See **Manufacturers, etc.**

**Rigg's Disease.** See **Pyorrhœa**.

**Rinsing** the mouth after extractions is strongly condemned by *Brandt* (in *Ann. des Mal. de l'Oreille*, etc.) as inciting to hæmorrhage and infection.

**Ritter Dental Manufacturing Co.** See **Manufacturers, etc.**

**Roberts** (G.). See **Manufacturers, etc.**

**Roch fils.** See **Manufacturers, etc.**

**Roentgen Rays.** An account of the routine technique of taking dental skiagraphs, from the experience of a specialist devoting himself to this for the profession in New York, is reported, with a discussion, in *D. Cos.*, XLIV., p. 1260. An ordinary No. 1 pocket kodak film is folded double; in the dark room is cut to shape from one of a selection of aluminium patterns. This is wrapped in ordinary black paper folded on the same pattern, and the whole enclosed in rubber. Not rubber dam is used, but palate or vellum rubber, very thin, transparent, and sticky. The resulting light and waterproof envelope can be confidently used in the mouth without injury. The tube used at a distance of 12 to 15 inches from the face, and an exposure of one minute, gives good results.

**Root Fillings** and their Relative Value. *Dr. C. W. Stainton* (*D. Cos.*, XLVI., p. 106), in an admirable historical article on root filling, strongly upholds the claims of oxy-chloride of zinc as the best permanent root filling. He dwells on the fact that, being an hydraulic cement, the root canals need not be dry; that is to say, water does not prevent

but favours penetration and adhesion. Oils used in treatment should be carefully removed first.

*Leo Greenbaum* regards the nature of the material as quite secondary to preliminary treatment and preparation. Considers root treatment the severest possible test of practical application of modern antiseptic practice. The most notable advance of the decade thought to be Dr. Callahan's sulphuric acid treatment and Dr. Soderberg's mummification process with paste of desiccated alum, thymol, glycerol, and zinc oxide. Finds an improvement upon this to be the addition of a small quantity of formaldehyde, which has the valuable property of hardening and retaining the paste. Respecting the so-called 'digestive' plans, a large series of comparative experiments proves the superiority of caroid solvent for this purpose. This is a saturated solution of the vegetable ferments of *Carica papaya* and of the fat-splitting ferment of *Colza*. This he found a remarkable solvent of dead organic tissue in either acid, alkaline, or neutral conditions, with great penetrating powers and non-irritating. Roots treated with this present a whitened appearance, as if bleached.

**Root-Canal Dressing as Excluders of Bacteria, The Comparative Value of Ordinary Sealings for.** *A. E. Webster.* A remarkable series of bacteriological experiments to determine the permeability of materials ordinarily used as root sealings to bacteria. Sterilized broth was confined in small glass tubes by gutta-percha, oxyphosphate cement, plain cotton, sandarac on cotton, benzo-balsam on cotton, oxychloride cement, and sterile vaseline on cotton; immersed in saliva at body temperature for varying periods. In nearly all cases there was infection (presumably by the invasion of bacteria either through or by the side of the sealing), with the solitary exception of oxychloride cement. In a discussion on the paper, reported in *D. Cos.*, XLIV., p. 1148, some scepticism was



expressed as to the value of tests so made, and the fact elicited that oxychloride expanded in setting so as to frequently break glass tubes. General confidence declared in practical efficacy of gutta-percha or its solutions, and testimony to oxychloride as both an antiseptic and mechanical sealing.

The whole subject of root dressing and filling is also thoughtfully treated from the same point of view, and practical instructions conveyed by *T. Wilson Hogue* in *B. D. J.*, XXIV., p. 138, and by *J. L. Payne* in *B. D. J.*, XXIV., p. 744.

**Roots, Removing difficult.** Short roots which are nearly covered with gum tissue may be removed with very little pain and no laceration of either gums or process by inserting a wood screw into the canal. The screw should be about half an inch long and one-sixteenth of an inch in diameter. The projecting end can be grasped with the forceps. The use of a small tap corresponding in size with the screw facilitates its insertion.—*MARK G. McELHINNEY*, Ottawa, Canada, *Dental Review*.

In many cases where the root is too frail to hold a screw, it has been found of advantage to well roughen and dry the interior, fill with soft amalgam into which a screw can be inserted before it sets. Some hours should be allowed to elapse—a day, if possible—before extraction.

**Rosser (Fred).** See **Manufacturers, etc.**

**Rubber Dam**, new, examined bacteriologically, has in some cases been found more septic than specimens used and cleansed without sterilization. As boiling is said to rather weaken it, especially if very thin, it is suggested that it be kept in dilute formalin and rinsed in alcohol before use.

**Rubber and Aluminium** for palatal surfaces of dentures is used in Germany by mixing the metal in powder with a solution of vulcanizable rubber in chloroform and painting several coats on the model. It is said to adhere

to roughened gold or aluminium plate, to fit better than a bare swaged plate, and to have the advantage of metallic conduction. Assumes a dull gray lustre.

**Rutterford (A. H.).** See **Manufacturers, etc.**

### S.

**Saccharine**, also known as glucide, or glusidum, and official as glucosimide, has, since the classic experiments of Dr. Miller, been recognised as the best substitute for sugar or glycerine in disguising unpleasant flavours in mouth-washes, as it has a considerable antiseptic value of its own. Though but slightly soluble in water, and fairly so in alcohol, its strongly acid reaction should be borne in mind, as incompatible with alkaloids and metallic bases. A soda combination (known as the 'soluble') is more convenient and generally compatible in mixtures. It has entirely replaced sugar or honey, which are acidly fermentable in tooth-pastes, etc.

**Salicifrice.** A proprietary tooth-cleansing preparation, said to be similar to Kalodont, and to be made up with liquid glycerine, soap, etc.

**Salit** is the salicylic ester of alcohols of the borneol group. The preparation is a brown oily fluid, insoluble in water, sparingly soluble in alcohol, but freely so in all proportions in benzole, ether, and fatty oils. In the presence of alkalies and after its incorporation it splits up into borneol and salicylic acid.

**Saliva.** The constitution of the oral secretions are justly regarded by pathologists as probably the principal factor in caries, but opinion still varies as to certain most elementary points in the problem. For instance, while it is, perhaps, most generally held that an acid reaction is particularly injurious as accelerating caries, others teach that an alkaline condition is more unfavourable, based upon the fact of bacteriology that the specific pathogenic

organisms grow better in an alkaline than an acid medium. In all probability these considerations have little to do with the problem of caries, the retention of fermentable foodstuffs, whether in an acid or alkaline saliva, being invariably associated with the growth of bacteria and an acid reaction at the point of attack. Then there is the possibility of some other specific constituent of the saliva which either inhibits or favours decay. Certain sulphur salts thought to be inhibitory cannot, however, be proved to be so, and the proportion of mucin present has recently been regarded as a main factor. *See Mucin.* There is agreement that, whether the constitution of the teeth themselves (which cannot be demonstrated by analysis) is a factor or not, the chemical constitution of the saliva affords no indication as to the balance of power in the buccal flora and the relations between the various saprophytes and pathogenic bacteria and the normal process of phagocytosis.

**Salol** (rechristened phenylis salicylas in the new U.S.P.), a phenyl salicylate, being a solid at ordinary temperatures, with a melting-point but little above that of the body, and being nearly insoluble, has been used, melted on a hot instrument or in a syringe, for root filling; and is the main constituent of small pilules made up with menthol or thymol and a little zinc oxide for flowing over a slightly exposed pulp. It immediately hardens in position, and enables a filling to be made over it at once. It is supposed to be, in alcoholic solution, the main constituent of certain trade mouth-washes, such as odol and sanitol.

**Salicylic Acid**, from which so much was at one time expected, has been disappointing as an antiseptic, and in strong solution has been found to have a dissolving action on the lime-salts of tooth structures. Its natural methyl combinations (such as the winter-green or gaultheria series of

derivatives) are both the safest and most efficacious forms of using it.

**Salt Solution**, normal or physiological. *See Normal.*

**Sanitas.** This much-used popular disinfectant (an air-oxidized turpentine), containing a considerable amount of active peroxide of hydrogen, thymol, etc., is of great use as an emergency wash, etc., but for continuous use is found too astringent.

**Sanoform.** Among the many substances which have from time to time been introduced as substitutes for iodoform, without having ever been eligible to replace it, sanoform, or di-iodosalicylic methylester, has secured some recognition.

**Sapo Durus**, Castile soap. *See Soap.*

**Sbornik.** Zoobovrachebny (Dentists' Magazine). *See Journals.*

**Schofield and Jessop**, Agents, Dental Transfer, Assistants' and Mechanics' Agency, 32, Sackville Street, Piccadilly, London, W.

Mr. Ernest Schofield, partner in the firm of Schofield and Jessop, 32, Sackville Street, Piccadilly, London, W., is the only agent in London dealing exclusively in dental agency work. Mr. Schofield is now well known to many of the leading dentists in town and country, having started the much-needed Assistants' and Mechanics' Agency.

Mr. Jessop is the son of a doctor of some thirty years' standing, and the brother of Mr. Gilbert Jessop, the well-known cricketer. Great care is exercised before any assistant, *locum tenens*, or mechanic is allowed to place his name upon the books, and Mr. Ernest Schofield makes a point of personally investigating every practice placed with him for transfer.

**School Dentists' Society**, founded in 1898 as an independent organization, was the result of the action of the British Dental Association in appointing a committee for collective

investigation as to the condition of the teeth of children in Poor Law and other schools.

*Objects of the Society.*—(1) Mutual assistance in promoting School Dentistry ; (2) holding of meetings for the consideration of all subjects connected with the special work of School Dentists.

*Constitution.*—All present or retired dentists appointed to any public institution for children under the control of a council or other governing body are eligible for election as members of the Society.

#### OFFICERS.

*President* : Sidney Spokes, M.R.C.S., L.D.S.

*Vice-President* : A. E. Baker, M.R.C.S., L.R.C.P., L.D.S.

*Council* : Norman G. Bennett, M.A., M.B., L.R.C.P., M.R.C.S., L.D.S. ; Dennison Pedley, F.R.C.S., L.D.S. ; Frank Harrison, M.R.C.S., L.D.S. ; Henry Dreschfeld, L.D.S.

*Treasurer* : Vernon Knowles, L.D.S.

*Hon. Secretary* : William Fisk, L.D.S., Street Lodge, Watford, Herts.

The School Dentists' Society advocates the teaching of Dental Hygiene in the public elementary schools, and endeavours to impress upon all those who are responsible for the training of the young the importance of dental supervision.

The following are among the Appointments made to Union and District Schools with the sanction of the Local Government Board :

UNION (etc.).			NAME OF DENTIST.
Barnsley	...	...	... J. W. H. Wilson
Beverley	...	...	... J. G. Wallis
Birmingham	...	...	... W. Elliott
Blackburn	...	...	... J. I. Shorrock
Brentford (at Schools)	...	...	... G. H. Summers
Brighton	...	...	... A. Read
Burnley	...	...	... T. Jackson

**UNION (etc.).****NAME OF DENTIST.**

Chorlton ... ..	...	J. Stevenson
Christchurch ... ..	...	W. A. German
Croydon ... ..	...	H. J. Moxon
Ecclesall Bierlow ... ..	...	W. H. Tolputt
Edmonton ... ..	...	F. W. Jones
Hackney ... ..	...	J. T. Hankey
Hungerford and Ramsford ... ..	...	J. W. Waddington
Huntingdon ... ..	...	F. Ellis
Ipswich ... ..	...	H. Tracy
Islington ... ..	...	H. Love
Kingston-upon-Hull ... ..	...	T. H. Bergman
Lambeth ... ..	...	W. Whitehouse
Marylebone ... ..	...	S. F. Rose
Northwich ... ..	...	W. Lee
Nottingham ... ..	...	H. P. Taylor
Oldham ... ..	...	W. H. Buckley
Oxford ... ..	...	E. C. H. Jessop
Poplar .. ..	...	H. J. Moxon
Rochdale ... ..	...	I. Renshaw
Salford ... ..	...	A. Hatton
Sheffield ... ..	...	W. H. Tolputt
Southampton ... ..	...	D. H. Whitlock
Strand ... ..	...	A. Richards
St. George-in-the-East ... ..	...	R. H. Cumine
St. Pancras ... ..	...	William Fisk
Watford ... ..	...	William Fisk
Westminster ... ..	...	H. J. Moxon
Willesden ... ..	...	E. C. Fisk
Wolverhampton ... ..	...	E. V. Knight

**DISTRICT SCHOOLS.**

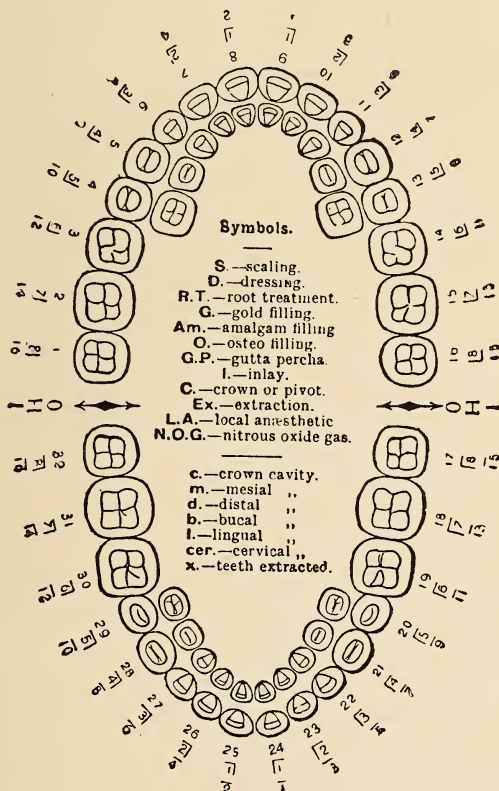
Central London School District (Hanwell Schools) ...	S. Spokes
Kensington and Chelsea School District (Banstead and Ham- mersmith Schools) ...	E. Keen
North Surrey School District (Anerley and Broadstairs Schools) ... ..	H. J. Moxon
West London School District (Ashford School) ... ..	T. J. F. Rooke



# UNDER THE METROPOLITAN ASYLUMS BOARD.

Rochester House Asylum for  
Children (Ealing) ... C. Edward Wallis

O=Ordinary Notation. H=Hospital Notation. I=International Notation.



N.B.—A decimal point in front of a number denotes a Temporary Tooth in all Notations.

A 'School Dental Register' in the form of a book for recording operations has been compiled by the Hon.

Treasurer of the Society, Mr. Vernon Knowles, which though not officially issued by the Society has been adopted by many members. The simple form of chart recommended, indicating the three notations in use and suggesting abbreviations for operations, we reproduce by the courtesy of the publishers, Messrs. John Bale, Sons, and Danielsson.

Important and interesting testimony to the want of dental attention in schools was given by the Lecturer on Elocution to Aberdeen University, in a paper read at the annual meeting of the B.D.A. (*B. D. J.*, XXV., p. 845) respecting the defects in speech which he came across. *Professor Alfred Macleod* says :

‘It is my experience that when the speech is imperfect in children from dental causes a condition has been reached which urgently demands the aid of a dentist, and to my knowledge that condition exists in far too numerous instances, and yet nothing is done to amend it.’

**Schneider and Co., Ltd.**, 9, Noble Street, London, E.C.

Importers of Ascher's Artificial Enamel, the translucent silicate filling cement.

**Schools and Colleges, Dental.** *See Colleges and Schools, also American Colleges.*

**Schweizerische Vierteljahrschrift für Zahnheilkunde.** *See Journals.*

**Sealed Gold Inlays.** *See Inlays.*

**Sealing a Cavity** for the retention of any dressing temporarily, such as arsenic or an obtundent, is done in so many ways that some must be more satisfactory than others.

The most important case is undoubtedly the retention of arsenic, where pressure has to be avoided, leakage prevented, and a certain amount of stability assured.

Cotton soaked in mastic or gum sandarac fulfills none of these conditions, and soon becomes foul. Carbolized resin is better in the latter respect, or oil of cinnamon

may be dissolved in the gum used. Gutta-percha requires some pressure, and is treacherous. A thin, quick-setting cement, such as oxysulphate, is better, and some operators find plaster of Paris quite suitable in many situations. This is absolutely non-irritating, and if kept dry for two or three minutes after setting, and varnished, can be usually depended upon for two or three days, and is easily removed. Several experienced operators have used it for arsenical dressings with satisfaction for many years.

**Sea Tangle** (*Laminaria digitata*), which after being well dried swells so much in the oral fluids, should not go entirely out of use in separating teeth. Its action is more gradual than compressed wood, and more certain of retention, in most cases, than cotton, while its iodine and salts keep it much longer aseptic.

**Sensitive Dentine.** See **Obtundents**, also **Nervocidin**.

**Serum or Vaccine** treatment of oral affections, proposed by *Goadby*. See **Pyorrhœa**.

**Sesemann, Krohne and.** See **Manufacturers**, etc.

**Shikwa-gakuho.** See **Journals**.

**Sibley (Gideon).** See **Manufacturers**, etc.

**Silvinium Artificial Plate Company.** See **Manufacturers**, etc.

**Simon et Cie. (Victor).** See **Manufacturers**, etc.

**Simonis (Commandit-Gesellschaft Emil).** See **Manufacturers**, etc.

**Smale Brothers.** See **Manufacturers**, etc.

**Smith and Son (Lee S.).** See **Manufacturers**, etc.

**Soap**, in many forms, from the plain 'Castile' to the specially made 'tooth-soap,' is so general as an everyday convenient dentifrice that we may point out that while pure soap is an excellent detergent and lubricant for the brush, there is stated to be an undoubted tendency, when used alone in the mouth continuously, for white and blue-

white enamel to be darkened in the direction of slight yellowness.

Anatomists deny the possibility of this, but the observation has so frequently been recorded that it is difficult to ignore the fact. If, as may be the case, there is a slight absorption of the fatty acid liberated by partial de-saponification in the mouth, this would be obviated by the combination with soap of such an absorbent and neutralizing powder as chalk. And, in fact, the dry admixture in powder form is the typical formula empirically arrived at for most, if not all, commonly used soapy tooth-powders. When, however, the custom has been formed of using a cake of plain soap, one should advise that after charging the brush with the soap it is as well to also dip it into plain precipitated chalk before conveying it to the mouth. Those who after the long use of soap say they find a plain dry powder disagreeable may often thus be reconciled to a powder. Much has been said about the bactericidal properties of soap, and although it is probably as high or higher than many vaunted specifics, its action must be limited, as, for instance, note the foul condition of soapy sink waste-pipes, even where the purest soap is used.

**Soap. Etherial Solution of** (*Solutio saponis ætheria*). A very satisfactory preparation of this useful detergent is made by the following formula of the new *Pharm. of St. Thomas's Hospital*:

℞	Oleic acid	..	..	..	..	℥v̄ij.
	Alcohol (90 per cent.)	..	..	..	..	℥iij.

Mix, and neutralize with a saturated solution of potassium hydroxide in water (1 in 1), of which nearly 1½ fl. ounces will be required, using phenol-phthalein as indicator. Allow the neutralized product to cool, and add:

℞	Oil of lavender	..	..	..	℥xx.
	Methylated ether, sp. gr. 0.720, to..				Oi.

Preserve in well-closed bottles.

A commercial article well known as *Johnston's Etherial*

*Antiseptic Soap*, much used in America, is one of the specialties of *Parke, Davis and Co.* Etherial soap makes an instantaneous parting film in plaster casting.

**Société Chimique des Usines du Rhone.** See **Manufacturers**, etc.

**Société Française de Fournitures Dentaires.** *G. Ott et Cie.*  
See **Manufacturers**, etc.

### **Societies :**

A few changes and developments have occurred or been contemplated during the last year affecting the organization of the profession.

The British Dental Association continues to grow in numbers and in its work. A new branch, which promises to be a large and important one, has been established in the Northern Counties, including a portion of the large area occupied by the great North Midland Branch, and a number of local sections of branches have sprung up.

A contemplated amalgamation of many of the medical societies of London into one important representative body, some particulars of which may be found in the *Dental Surgeon* (I. 56, p. 802), will affect the dental profession, inasmuch as the Odontological Society will be one of those constituent subsidiary societies. It is not proposed to entirely merge the different bodies, except as they may desire to dissolve; but a single subscription will cover membership of the new institution, or a smaller fee will continue membership separately on the present basis.

We mentioned last year the revival of a section of Dental Surgery formed by the British Medical Association at its Annual Meeting at Oxford from July 26 to 29, 1904, known as Section O, under the following officers—*President* : Edmund Augustine Bevers, Mayor of Oxford ; *Vice-Presidents* : Frank Earle Huxley, Birmingham, and Howard Mummary, London. *Hon. Secretaries* : Kenneth W. Goadby and John McKno Ackland.

So large a number of the dental profession now belong to the Association that, with many invited guests from home and abroad, a most interesting and well-attended function resulted. The Presidential Address of the dental Mayor of Oxford, Mr. Bevers, and an important discussion on 'Oral Sepsis as a cause of Disease in Relation to General Medicine,' occupies no less than fifteen pages of the *B. M. J.* (November 19, 1904, No. 2290, pp. 151, 357).

It was at the time thought quite possible that the Dental Section might not be an annual function; but last year it had another successful session at the meeting of the Association at Leicester from July 24 to 28.

The following were the officials—*President*: Morton Alfred Smale, London. *Vice-Presidents*: Edward Lloyd-Williams, London; Francis John Lankester, Leicester. *Hon. Secretaries*: William Armston Vice, 19, Belvoir Street, Leicester; Joseph George Turner, 12, George Street, Hanover Square, W.

After an introductory address by Mr. Morton Smale, Dr. J. S. Risien Russell (London) introduced a discussion on 'Toothache, Neuralgia, and Remote Affections of Dental Origin.' He passed in review anæmia, malaria, diabetes, and the debilitating effects of influenza, and made brief reference to facial hemiatrophy. He warned his audience to be on their guard against hysteria, and in neurasthenia he emphasized the importance of indications of organic disease. He laid special stress on epileptiform neuralgia (*tic douloureux*), in which the extraction of teeth was worse than useless, and the extirpation of the Gasserian ganglion offered the only possibility of cure, a procedure in which highly satisfactory results were to be obtained by the operation as devised by Krause.

Mr. Mummery (London), in following Dr. Risien Russell, confined his remarks to the dental surgery aspects of neuralgias. The subject would be considered as related



to diseased conditions of the tooth-pulp, to affections of the dental periosteum, and to difficult eruption and malposition. Pain in the distribution of a nerve was, like toothache, not a disease *per se*, but a manifestation of irritation at some point of the nerve and its branches. The areas mapped out by Head showed that teeth exhibited pain localizations, the area affected including the tooth involved. Neuralgia occurred in edentulous jaws and also in the wasted alveoli of lost teeth. Neuralgia minor caused typical darting pains, but these followed the distribution of peripheral nerves, and were not associated with hyperæsthetic areas. There were maximum spots in tender areas. Mr. Mummery then discussed the pain and tenderness areas associated with special teeth, to which scarcely sufficient attention was generally paid. He detailed cases of neuralgic pain and the evidence of its origin from the pain distribution. He referred to other examples of reflex disturbance, as vomiting, eye and ear affections, and trophic changes, emphasizing the importance of excluding dental causes in obscure neuralgia, rendered essential from the fact that quite minor dental affections were associated with considerable neuralgic pain.

Dr. Urban Pritchard (London) dealt with various affections of the ear, nose, and throat of dental origin. Such cases were, however, by no means so common as generally supposed, 'earache' in childhood being considered by otologists as due to local inflammatory causes rather than to reflex irritation of dentition. In adults true neuralgia of the ear was more frequently due to dental reflex pain than to any other cause. He was inclined to attribute to reflex dental irritation some cases of otitis media, especially in children, not as the direct cause, but contributory in depressing the vitality of the ear. This accounts for the difficulty in treating cases of

otitis media during teething. Arthritis of the temporo-maxillary articulation was another cause of neuralgia of the ear. Occasionally swelling and œdema over the mastoid process were due to inflammation from dento-alveolar abscess, and might be confused with mastoid disease. Of the effect of removal of teeth upon hearing he was inclined to be sceptical.

Dr. Leonard G. Guthrie (London) considered that although 'teething' had been so largely held accountable for infantile diseases, and although the public even now persisted in ascribing all complaints of infancy to teething, perhaps they paid less attention to the subject than it deserved. In dentition increased salivation might be the only sign, but the child often rubbed his ear or the back of his head, showing that pain was referred elsewhere. Convulsions were more common below the teething age than during it. Where an unrecognised pneumonic crisis corresponded with the eruption of a tooth it was possible that the one was referred to the other. The reflex theory would not explain all the complaints associated with painful dentition, neither would the pyrexial theory, while especial susceptibility at the period of eruption seemed opposed to the fact that dentition was a normal process.

Some remarks by Dr. E. Cautley (London) were also read.

Dr. Robert Hutchinson (London) considered it very doubtful whether disorders popularly ascribed to reflex effects of dental origin had any relation to dentition.

Sir Victor Horsley proceeded to discuss the various neuralgias of the fifth nerve; the peripheral variety was frequently of dental origin, and might affect the Gasserian ganglion. He then gave cases of bilateral excision of the ganglion of the fifth nerve, motor roots being retained; the mortality of 100 cases was now only 7 per cent.

Mr. F. J. Bennett continued the discussion, regretting the absence of Mr. Lowe.

Mr. Sydney Spokes described a variety of neuralgia increased in the recumbent position.

Mr. H. Baldwin insisted on the fact that teeth with inflamed pulps were more often the cause of neuralgias than septic teeth.

Dr. Edward A. Bogue (New York) called attention to the presence of posterior cavities often almost impossible to find.

Mr. Huxley mentioned cases of neuralgia of nasal origin which had been referred to the teeth.

Messrs. Lewin Payne, W. A. Maggs, H. A. Fairbank, A. S. Underwood, J. Rymer, K. W. Goadby, Armston Vice, J. G. Turner, Dr. Brookhouse, and Mr. Sloan joined the discussion, after which Mr. Mummery made reply in Dr. Risien Russell's absence.

Mr. Kenneth W. Goadby contributed 'A Preliminary Note on the Treatment of Pyorrhœa by Vaccine made from Staphylococci present in Alveolar Pus.'

Mr. J. F. Colyer read a paper on 'Dental Disease among Horses, including Dental Caries and Affections of the Peridental Membrane.' He said peridental disease was common, 108 cases being found in 500 specimens; infection of the bone and the antrum also occurred.

Mr. Sydney Spokes read a paper upon the 'Teeth as a Test of Age' and gave statistics of boys at a large public school, where 4 per cent. of boys over thirteen years had no second molars, over fourteen 7 per cent. were still without the whole of their second permanent molars, thus rendering the teeth as a test very unreliable.

Mr. Douglas Gabell gave a demonstration with lantern slides of dental pathological conditions.

Mr. J. F. Rymer read a paper on 'Vegetarianism and its Effects upon the Teeth.'

Dr. Bogue, who had come from New York for the purpose of attending the meetings, gave a paper with

a series of lantern slides, showing the relation of the temporary and permanent teeth, and the effect upon the permanent teeth, singly and generally of removal of the temporary ones. He preferred the use of mechanical methods to extraction. In the discussion Mr. J. F. Colyer, Mr. Edward Lloyd-Williams, Mr. J. G. Turner, and Mr. Howard Mummery took part.

Dr. Astley Clarke read a paper on an 'Unusual Case of Acute Necrosis in a Child aged Two and a Half Years.'

The Secretary read a paper by Mr. Lawson Dodd on an 'Obscure Case of Alveolar Abscess.'

We mentioned last year a Students' Union among the various Dental Schools, but this has not yet been started. It would seem that where more than one school existed in any city such intercourse would be of great value.

Turning from domestic affairs, the most interesting feature in organization has been the recognition of the International Dental Federation by the British Dental Association, in the appointment of five delegates, who attended the meeting of the Committees of the International last year. *See International Federation.*

Our following list of Societies has been carefully revised and corrected to date, by the kind assistance of the Hon. Secretaries.

Odontological Society of Great Britain, 20, Hanover Square, W. Officers for 1905-1906—*President*: E. G. Betts; *Vice-Presidents*: Resident—L. Matheson, E. Lloyd-Williams, W. Hern; Non-Resident—Dr. Joseph Arkövy (Buda-Pesth), T. S. Carter (Leeds), Dr. A. L. Northrop (New York); *Treasurer*: C. F. Rilot; *Librarian*: H. Baldwin; *Curator*: J. F. Colyer; *Editor of Transactions*: A. Hopewell-Smith; *Hon. Secretaries*: J. H. Mummery (Foreign), Carl Schelling (Council), W. S. Nowell (Society); *Council*: Resident—J. B. Parfitt, D. P. Gabell,

Montagu F. Hopson, Ashley B. Densham, Russell Barrett, George Hern, C. A. Clarke, George Thomson, J. Lewin Payne ; Non-Resident—J. C. Foran (Eastbourne), W. S. Holford (Sutton), O. Fergus (Glasgow), R. Fairfax Reading (Sydney), Percy L. Webster (Margate), A. R. Colyer (Beckenham), E. Fothergill (Newcastle), E. A. Bevers (Oxford), J. F. Rymer (Brighton).

The Society is instituted for the cultivation and diffusion of knowledge in Dental Science, and in the branches of Science connected therewith.

Candidates for the Resident, Non-Resident, or Corresponding Membership of the Society shall not be eligible unless they practise as Dental Surgeons, or are interested in the progress of Dental Surgery ; and are also Licentiates in Dental Surgery, or qualified Practitioners of Medicine or Surgery, or possess such a Diploma or Degree as in the opinion of the Council will qualify them for the membership of the Society.

Every person elected a Resident Member shall pay 3 guineas as an admission fee and an annual subscription of 2 guineas *in advance*.

Every person elected a Non-Resident Member shall pay 2 guineas as an admission fee and an annual subscription of 1 guinea *in advance*.

The ordinary meetings of the Society are usually held on the last Monday in each month from October to June, both inclusive, at 8 p.m. precisely, except in December, when there is no meeting. The Museum Library will be open on Tuesdays and Fridays from 6 to 9 p.m., and on the Saturday afternoons which immediately precede the meetings. *See Diary.*

Odontological-Chirurgical Society of Scotland. *President* : F. J. Turnbull ; *Vice-Presidents* : C. F. Sutcliffe, L.D.S., and L. S. Shennan ; *Treasurer* : R. Lindsay ; *Curator-Librarian* : W. T. Finlayson ; *Hon. Secretary* : T. P. Wolston Watt, 59, Queen Street, Edinburgh ; *Council* : J. S. Amooore, J. Morris Stewart, L.C., Broughton-Head, and A. Shennan.

*Objects.*—The promotion and diffusion of knowledge in matters connected with Dental Science ; the furtherance of communications on such subjects by members of the Society ; and the advancement generally of the interests of Dentistry as a branch of medicine.

The Ordinary Members shall consist of gentlemen on the Dental Register practising as Dentists in Great Britain.

The Honorary and Corresponding Members shall consist of gentlemen practising Dentistry in Great Britain, in the Colonies, or in Foreign Countries, and of retired Dental Practitioners in Britain, as well as such medical or scientific men as may have distinguished themselves in connection with dentistry.

The entrance fee shall be half a guinea and the annual subscription half a guinea, payable in advance.

The meetings are held on the second Thursday in the month, from November to March. See **Diary**.

Liverpool District Odontological Society. *President* : E. A. Councill ; *Vice-President* : G. S. Bonnalie ; *Hon. Treasurer* : J. P. Roberts ; *Hon. Librarian* : E. C. Woods ; *Hon. Curator* : H. W. P. Bennette ; *Council* : R. M. Capon, T. Mansell, W. H. Waite, F. E. Garner, R. H. Bates, W. H. Gilmour ; *Editor of Transactions* : E. G. Narra-more ; *Hon. Secretary* : J. A. Woods, 76, Mount Pleasant, Liverpool.

The meetings are held at the Medical Club, 64, Mount Pleasant, at 7.30, on the third Tuesday in October, November, January, February, March, and April. The annual meeting is on April 24. See **Diary**.

Each member may introduce two visitors. The Annual Subscription is £1 is., with an entrance fee for residents £1, non residents 10s. 6d. Entrance fee is remitted to young applicants within twelve months of qualifying.

The Medical Club is open to members on all Tuesdays during the year.

Manchester Odontological Society. *President* : P. A. Linnell ; *Vice-Presidents* : Messrs. Taylor and Norman ; *Treasurer* : H. Planck ; *Librarian* : D. Headridge ; *Editor*



*of Transactions*: E. P. Collett; *Curator*: Dr. C. H. Preston; *Secretaries*: J. Stephenson, Western House, Fallowfield (Society), T. E. Sherratt, 26, King Street, Manchester (Council); *Council*: W. A. Hooton, G. O. Whittaker, J. H. Matthews, G. Hughes, C. B. Dalby, W. Simms, G. G. Campion, J. Theakston, and B. J. Rodway.

The Society has for its object the diffusion of knowledge and the promotion of intercourse among dentists, and the advancement of the general interests of the Dental Profession.

The Resident Members shall consist of gentlemen practising as Dentists within five miles of the Manchester Royal Exchange.

The Non-Resident Members shall consist of gentlemen practising as Dentists beyond the above distance.

The Honorary Members shall consist of distinguished Dentists, or medical men, and of gentlemen distinguished in any department of science, elected in accordance with Law 27.

*Contributions*.—Resident Members shall pay an entrance fee of half a guinea, and an annual subscription of 1 guinea, due in advance. Non-Resident Members shall pay an entrance fee of half a guinea and an annual subscription of half a guinea, due in advance.

Ordinary meetings are held on the first Tuesday of every month from October to May inclusive, at 7.30 p.m., at the Grand Hotel, Aytoun Street, except in December and April, when they are held at the Victoria Dental Hospital, All Saints, Manchester, as they are reserved for demonstrations. See **Diary**.

North of England Odontological Society, Newcastle-on-Tyne.  
Officers — *President*: C. L. Routledge; *Vice-Presidents*: Ralph Carr, T. D. Page; *Hon. Treasurer*: W. G. Routledge, 5, Belgrave Parade, Newcastle-on-Tyne; *Hon. Secretaries*: J. G. Ranken, 14, Grange Crescent, Sunderland; J. Coltman, Redthorpe, Heaton Road, Newcastle-on-Tyne; *Council*: G. Brewis, T. R. D. Walkinshaw, W. D. Moon, J. Daniels, W. B. Black, H. P. Friend.

The ordinary meetings are held in Newcastle-on-Tyne on the third Thursday of each of the months from October to February, inclusive, at 6.30 p.m. *See Diary.*

Members pay an entrance fee of 5s. on admission and an annual subscription of half a guinea.

The Sheffield and District Association of Licentiates in Dental Surgery. *President*: G. Lodge, L.D.S.I.; *Vice-Presidents*: R. C. H. Drabble and F. Mordaunt; *Hon. Secretary and Treasurer*: H. James Morris, Glossop Road, Sheffield.

This is one of the oldest established dental societies in England. It is twenty years old, and was started by two or three gentlemen with the object of providing a public dental service in Sheffield.

Membership of this Society is confined to those who possess the L.D.S. diploma.

The result of their efforts is to be seen in a well-equipped dental department at the Royal Hospital, West Street. It meets on the last Tuesday of every month from October to May, December excepted, at the Sheffield University, at 8 p.m., when papers are read and discussions take place on matters of dental science and ethics, the November meeting being generally an annual dinner. *See Diary.*

The British Dental Association (incorporated June 3, 1880), 19, Hanover Square, London, W. *President*: T. Gaddes; *President-Elect*: L. Matheson; *Past-President*: W. H. Williamson; *Vice-Presidents*: John Smith; T. A. Rogers, S. Lee Rymer, Alfred J. Woodhouse; *Hon. Treasurer*: H. Baldwin; *Hon. Secretary*: W. H. Dolamore; *Secretary*: B. C. Rayner, B.A. Lond.; *Editor of the organ of the Association, the 'British Dental Journal'*: Walter H. Coffin.

*Members of the Representative Board (ex-officio)* *President*: T. Gaddes; *President-Elect*: L. Matheson; *Past-President*: W. H. Williamson; *Vice-Presidents*: T. A. Rogers,

S. Lee Rymer, John Smith, A. J. Woodhouse; *Hon. Treasurer*: H. Baldwin; *Hon. Sec.*: W. H. Dolamore. *Editor British Dental Journal*: Walter H. Coffin. Central Counties Branch—*President*: W. A. Vice; *Hon. Sec.*: G. F. Cale-Matthews. Eastern Counties Branch—*President*: R. S. Parris; *Hon. Sec.*: E. Rhodes. Irish Branch—*President*: J. S. Thomson; *Hon. Sec.*: K. E. O'Duffy. Metropolitan Branch—*President*: L. Matheson; *Hon. Sec.*: T. A. Coysh. Northern Counties Branch—*President*: J. W. Dent; *Hon. Sec.*: T. R. D. Walkinshaw. North Midland Branch—*President*: W. H. Waite; *Hon. Sec.*: H. W. P. Bennette. Scottish Branch—*President*: P. Cumming; *Hon. Sec.*: J. D. Logan. Southern Counties Branch—*President*: C. Foran; *Hon. Sec.*: W. R. Wood. South Wales and Monmouth Branch—*President*: Gill Williams; *Hon. Sec.*: J. P. Oliver. Wessex Branch—*President*: J. Moore; *Hon. Sec.*: E. D. Bascombe. Western Counties Branch—*President*: O. Miller; *Hon. Sec.*: W. H. Goodman.

*Members Elected by Branches*: Central Counties Branch—H. R. F. Brooks. Eastern Counties Branch—A. Kirby. Irish Branch—C. M. Cunningham. Metropolitan Branch—J. H. Badcock, N. G. Bennett, W. B. Paterson, S. Spokes. Northern Counties Branch—W. D. Moon. North Midland Branch—R. M. Capon, T. Mansell, D. Headridge, G. O. Whittaker, J. A. Woods. Scottish Branch—W. Guy, C. Rees Price. Southern Counties Branch—J. C. Foran, J.P., W. Harrison, Morgan Hughes. South Wales and Monmouth Branch—H. J. Thomas. Wessex Branch—A. E. Ball. Western Counties Branch—E. L. Dudley. Unattached Representatives—Lawrence Read, Percy L. Webster. Co-opted Members: J. S. Amooore, G. G. Campion, Geo. Cunningham, W. Hern, W. E. Harding.

The meetings of the Representative Board are usually

held on the afternoon of the last Saturday of four months in the year; also at such other times as may be found necessary.

A noteworthy advance in the development of this Association has been the opening of new offices for the general purposes of the Association, and for the publication of the *Journal*, at 19, Hanover Square, London, W. From the first of last year (1905) the *British Dental Journal* has been issued twice a month—on the 1st and 15th. The total annual amount of matter is at least 50 per cent. greater than formerly, and besides containing full accounts of the transactions of the Association, its branches and sections, with notices of meetings, etc., there is frequent publication of original scientific and practical communications, with abstracts and translations of papers from other sources. No other change has been made in the character of the *Journal*, except that single copies will be 6d. instead of 1s. to non-members, the annual postal subscription remaining as before.

The objects for which the Association is established are the promotion of Dental and the allied Sciences, and the maintenance of the honour and the interests of the Dental Profession, by—

‘The periodical meetings of the Members of the Association; and the Dental Profession generally in different parts of the country;

‘The publication of a periodical journal; and by

‘The maintenance of the spirit and provisions of the Dentists Act by such lawful means as may be necessary,’ etc.

A person who is registered in the Dentists’ Register shall be eligible for election as a Member of the Association provided that he be of good character, that he does not conduct his practice by means of the exhibition of dental specimens, appliances, or apparatus in an open shop, or in a window, or in a show-case exposed to public inspection, or by means of public advertisements or circulars describing modes of practice, or patented or secret processes, or by the publication of his scale of professional charges.

Any registered Dental Practitioner not disqualified by any by-law who shall be recommended as eligible by any three Members of the Association (the recommendation

of one being from personal knowledge), and who has signed the form of application for admission and agreement as to terms of membership, may be elected a Member by the Representative Board, or by the Council of a recognised Branch.

The subscription is 1 guinea per annum, and each Member is entitled to a copy of the Journal of the Association fortnightly, and to attend the annual meetings of the Association.

Forms of application for Membership may be had of the Secretary, 19, Hanover Square, London, W.

The twenty-fifth annual meeting was held last year at Southport, in Lancashire, on May 20 and 29, assembling under the presidency of the retiring President, Dr. W. H. Williamson, of Aberdeen, who handed his office to the President, Dr. Gaddes, of Harrogate. Among the visitors from abroad and the locality were :

Professor Miller, of Berlin ; Dr. Jenkins, of Dresden ; Dr. Eudore Dubeau, the President of the Canadian Dental Association ; Dr. Willmott, his predecessor in this office ; and as Canadian delegates : Dr. Lantier, and Drs. Alex. Lemieux, L. N. Lemieux, and Eugene Lemieux ; Dr. Platschick, of Paris, the able director and editor of our contemporary, *Le Laboratoire* ; Dr. Hillier (U.S.A.) ; Professor Moore, of Liverpool University ; Dr. Weaver, the Medical Officer of Health for Southport ; Dr. Wheeler, the Medical Officer of Health for Birkdale ; Dr. Lloyd Snape, the Director of Education for Lancashire ; Dr. Walker, the President of the Southport Medical Society ; Dr. Baildon, Dr. Mackay, Dr. Littler, Dr. H. Barron, Dr. R. Anderson, and others.

A very good résumé report of all the proceedings, scientific and social, was given in the 'Association' number of the *Dental Surgeon* for May 27 (I., 30), and nearly all the papers and demonstrations have appeared in full during the year in the *Journal* of the Association.

The following papers and demonstrations were given :

‘Dental Defence,’ by Mr. C. W. Glassington.

‘Recent Legal Cases—a Proposal,’ by Mr. R. M. Capon.

‘Examinations in Elementary Dental Mechanics,’ by Mr. W. H. Gilmour.

‘Statistics concerning Condition of Children’s Teeth,’ by Mr. Barron J. Rodway, nominated by the Manchester Odontological Society, and Mr. A. Drake, nominated by the Liverpool Odontological Society.

‘School Dentistry,’ by Mr. Norman G. Bennett.

‘Tumours of the Alveolar Borders of the Upper Maxillary Bone’ (illustrated), by Mr. A. A. Lantier, Quebec, Canada.

‘Meteorological Conditions as Affecting N<sub>2</sub>O Anæsthesia,’ by Mr. Harvey Hilliard.

‘The Use of Nitrate of Silver in the Therapeutic and Prophylactic Treatment of Decay of the Teeth,’ by Professor W. D. Miller.

‘The Uncalcified Tissue of the Enamel,’ by Mr. D. E. Caush.

‘Porcelain Prosthesis,’ by Dr. Jenkins.

‘Inlays, with Examples,’ by Mr. W. Booth Pearsall.

‘A New Method of Making Retaining Points in Porcelain Inlays,’ by Dr. Platschick.

‘Continuous Gum Work,’ by Mr. W. G. Campbell.  
A short account of this we publish in this number.

‘Stereoscopic Radiography of the Mouth and Teeth,’ by Mr. S. Mitchell.

‘Removable and Sectional Bridges,’ by Mr. Edwin Houghton.

‘Various Matrices and their Uses,’ by Mr. A. L. Bostock.

‘Trays to Assist in Putting Together Plaster Impressions after Removal from the Mouth,’ by Mr. Frank E. Garner.



‘A Regulation Case,’ by Mr. E. A. Councell.

‘High Fusing Porcelain,’ by Dr. R. N. Le Cron.

‘A New Gutta-percha Heater,’ by Mr. G. S. Bonnalie.

‘A Portable Combined Sterilizer and Antiseptic Holder,’  
by Mr. E. Thorne.

‘Silver Spatulas for Darkening Phosphate Fillings,’ by  
Mr. W. Harrison.

‘One or Two Pieces of Apparatus for the Treatment of  
Superior Protrusion,’ by Mr. J. H. Badcock.

(1) ‘Myers’ Anæsthetizing Syringe,’ (2) ‘Porcelain  
Molar Crowns,’ by Mr. H. J. Morris.

‘Improved Universal Inhaler,’ by Mr. William Guy.

(1) ‘A Set of Three Mouth-props’ (a modification of  
Mr. Brunton’s pattern), (2) ‘The Automatic Anæsthetic  
Capsule Holder and Breaker,’ by Mr. Vernon Knowles.

(1) ‘A Contrivance for Supporting Loose Teeth,’  
(2) ‘A Case of Inferior Protrusion,’ by Mr. R. M. Capon.

‘A Regulation Device,’ by Mr. Charles Rippon.

‘Locked Dentures,’ by Mr. H. W. P. Bennette.

(1) ‘Crowns,’ (2) ‘Inlays,’ by Mr. F. Rose.

‘Ascher’s Artificial Enamel,’ by W. H. Gilmour.

*Exhibits* : (1) ‘An Improved Contour Flask,’ (2) ‘An  
Adjustable Bunsen Burner for Heating Flasks and for  
General Bench Work,’ (3) ‘An Improved Phantom for  
the Use of Students and Demonstrations,’ (4) ‘An Ad-  
justable Holder for Flasks while Packing,’ by Mr. G.  
Brunton.

#### *Microscopical Slides.*

‘Enamel,’ by Mr. D. E. Caush.

‘A Very Abnormal Tooth,’ by Mr. J. Coltman.

‘Odontomes, with Photographs of Patients,’ by Mr.  
J. H. Gibbs.

‘A Set of General Dental Sections and Student’s Note-  
book as Types of Practical Work in the Histology Class  
at the Edinburgh Dental School,’ by Mr. William Guy.

'Sections Prepared by Weil's Process,' by Mr. S. F. Rose.

'General Dental Sections,' by Mr. J. A. Woods.

'Fibroid Degeneration of the Pulp and Periodontal Membrane,' by Mr. A. Hopewell-Smith.

### *Lantern Slides.*

About 100 slides of 'Enamel,' by Mr. D. E. Caush.

'Odontomes,' by Mr. J. H. Gibbs.

The next annual meeting will be held at London, on May 17, 18, 19, 1906. *See Diary.*

The Benevolent Fund of the British Dental Association, of which the Treasurer and Acting Chairman is Mr. Alfred J. Woodhouse, London, the Trustees being Richard Rogers, J.P., Cheltenham; Samuel Lee-Rymer, J.P., Croydon; and S. J. Hutchinson, London, has investments last reported at £2,105; and during the year applied £720 to the relief of deserving applicants and the support of destitute children, irrespective of membership of the Association or the Fund; incapacity by age or temporary misfortune being the only and sufficient claims. This liberally and wisely administered Fund should be supported by all ranks of the Profession, and contributions sent either to the Hon. Secretary, Cornelius Robbins, Esq., or the Treasurer, at 19, Hanover Square, London, W.

## BRANCHES OF THE BRITISH DENTAL ASSOCIATION.

Central Counties Branch. Constituted 1884. *President:* W. A. Vice, 19, Belvoir Street, Leicester; *Hon. Secretary:* G. F. Cale-Matthews, 60, Newhall Street, Birmingham.

Meeting at the Medical Institute, Birmingham. *See Diary.*

Eastern Counties Branch. *President* : R. S. Parris, The Mansion House, Westgate, Peterborough; *Hon. Secretary* : E. Rhodes, Quentin, St. Barnabas Road, Cambridge.

*Area.* — Norfolk, Suffolk, Cambridgeshire, Essex, Lincolnshire, Northamptonshire, Bedfordshire, Hertfordshire, Bucks, and Huntingdon. *See Diary.*

Irish Branch. Constituted 1887. *President* : J. S. Thomson, 19, Lower Fitzwilliam Street, Dublin; *Hon. Secretary* : Kevin O'Duffy, 85, Harcourt Street, Dublin. *See Diary.*

Metropolitan Branch. Constituted 1891. *President* : L. Matheson, 22, Wimpole Street, W.; *Hon. Secretary* : T. A. Coysh, 373, Chiswick High Road, W.

Composed principally of those members of the British Dental Association practising within the London postal district. The Branch meets three or four times a year. One meeting in the summer is devoted to demonstrations, and the annual meeting is held in January. *See Diary.*

Northern Counties Branch. Constituted 1905. *President* : J. W. Dent, 1, Wood Street, Bridge Road, Stockton-on-Tees; *Hon. Secretary* : T. R. D. Walkinshaw, 1, Belgrave Parade, Newcastle-on-Tyne.

*Area.*—Westmoreland, Cumberland, Northumberland, and Durham.

North Midland Branch. Constituted 1880. *President* : W. H. Waite; *President-Elect* : C. Rippon; *Hon. Treasurer* : I. Renshaw, 87, Drake Street, Rochdale; *Hon. Secretary* : H. W. P. Bennette, 42, Hamilton Square, Birkenhead.

*Area.*—This Branch includes Lancashire, Yorkshire, Cheshire and Derbyshire, and Nottinghamshire, as far south as 53° latitude.

District Section—Leeds and District. *Hon. Secretaries* : P. T. Leigh (General), 6, Portland Crescent, Leeds; R. Littlewood Young (Editorial), Hillary Place, Leeds.

Members of this Society must be members of the North Midland Branch. Subscription: 5s. per annum.

Meetings monthly during the winter at the Hôtel Métropole, Leeds. See **Diary**.

Scottish Branch. Reconstituted 1895. *President*: P. Cumming, 34, Grahams Road, Falkirk, N.B.; *Hon. Treasurer*: Ernest J. Wallis; *Hon. Secretary*: J. Douglas Logan, 1, George Square, Edinburgh.

Meetings held alternately in Edinburgh and Glasgow. See **Diary**.

Southern Counties Branch. Constituted 1886. *President*: C. Foran, Normanton, Elm Grove, Southsea; *Hon. Secretary*: Walter R. Wood, 28, Old Steine, Brighton. See **Diary**.

Brighton and District Section of the Southern Counties Branch of the British Dental Association. *Chairman*: D. E. Caush; *Treasurer*: S. P. Johnson; *Hon. Secretary*: A. J. Gwalkin, 139, Western Road, Brighton.

South Wales and Monmouth Branch. Constituted 1898. *President*: Gill Williams, 32, Stow Hill, Newport, Mon.; *Hon. Secretary*: J. Percy Oliver, Ravensworth, Penarth, Glam. See **Diary**.

Wessex Branch. Constituted 1903. *President*: J. Moore, Melford Lodge, St. Stephen's Road, Bournemouth; *Hon. Secretary*: Ernest D. Bascombe, Melford Lodge, St. Stephen's Road, Bournemouth.

Western Counties Branch. Constituted 1883. *President*: O. Miller, 2, King Street, Hereford; *Hon. Secretary*: W. H. Goodman, 44, West Southernhay, Exeter. See **Diary**.

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Brighton Dental Society. This old-established Society, after a long and honourable career, ceased to exist in 1904,

having merged itself, with new blood, into the Southern Counties Branch of the B.D.A. as the Brighton Section of that Branch. *See* **British Dental Association**.

Students' Society of the Dental Hospital of London, Leicester Square, W.C.

The entrance fee for ordinary members is 2s. 6d., and there is an annual subscription of the same amount.

Ordinary meetings are held at 7.30 p.m. on the second Monday in each month, from October to March inclusive during the Winter Session, also meetings on the second Mondays in May and June during the Summer Session. The annual meeting for the election of officers and other business is held on the third Monday of January in each year.

Two Clinical Meetings and one Mechanical Meeting are held during the year.

There is a Library and a Museum in connection with the Hospital's Library Museum, both being under the superintendence of the Curator.

The Society offers a prize, value 3 guineas, at the end of each year for the best paper read during that year.

Students' Society of the National Dental Hospital and College, Great Portland Street, W.

The entrance fee is 2s. 6d., and the annual subscription 2s. 6d.

The ordinary meetings of the Society are held on the first Friday in each month from October to June, both inclusive, the meetings to commence at 8 p.m. precisely.

The President will award a prize for the best paper delivered by a student and a member of the Society at the end of each year.

The Students' Society of the Victoria Dental Hospital of Manchester.

The general meeting is held on the last Tuesday in each month from October to March inclusive, and the annual meeting is held in May of each year.

Papers are read on examination work, and demonstra-

tions of practical interest are given. The social side of the Society is a pleasant feature.

Members are permitted to attend meetings of the Manchester Odontological Society.

Students' Society of the Dental Hospital of Liverpool.

The annual subscription is 2s. 6d. for students and 5s. for honorary members.

The annual business meeting is held in June for the election of officers and reception of the treasurer's and secretary's report.

Birmingham Dental Students' Society.

An ordinary meeting is held twice every month during the Winter Session at Birmingham University, commencing at 7 p.m. on Thursdays. There is also held annually a dinner, conversazione, and picnic, the latter during the summer months.

The annual meeting for the election of officers and other business will be held in October next.

The Edinburgh Dental Students' Society. Instituted in July, 1885.

Ordinary meetings are held in the lecture-room of the Dental Hospital on the first Monday of each month, from November to March inclusive, and the annual dinner is held as near the date of the annual general meeting as convenient.

#### THE INTERNATIONAL DENTAL CONGRESS.

The Fourth International Dental Congress, which met at the Universal Exposition at St. Louis from August 29 to September 3, 1904, we mentioned in two previous issues of the *Dental Annual*, where, upon pp. 276-279 of 1904, continued upon pp. 404-410 of 1905, may be found full lists of the departments and sections, the various committees and officers, and some of the opening speeches. The official organ of



the Congress, the *Dental Cosmos*, upon p. 846, 1904, commenced a verbatim report of the proceedings.

## INTERNATIONAL DENTAL FEDERATION (F.D.I.).

An account of the origin and objects of this will be found upon pp. 410 and 411 of our last edition (1905). Since then five delegates representing Great Britain were elected by the last meeting of the British Dental Association, Mr. Howard Mummery being appointed as one of the Vice-Presidents, a post reserved for this country at the St. Louis meeting of the Federation. The following is a brief report of meetings of the Executive Council and Committees of Education, Hygiene, and Public Dental Service, held in Hanover, August 7, 1905, at the hall of the Central Vereins Deutscher Zahnärzte :

*Present (Officers).*—Professor W. D. Miller (Berlin), President, in the chair ; Charles Godon (Paris), Hon. President ; E. Sauvez (Paris), R. Weiser (Vienna), Vice-Presidents ; F. Schaeffer-Stuckert (Frankfort), Paul Guye (Geneva), Assistant Secretaries ; Florestan Aguilar (Madrid), Treasurer.

*Delegates from Great Britain.*—W. B. Paterson (London), G. G. Campion (Manchester), W. Guy (Edinburgh), Walter Harrison (Brighton).

*Delegates from Canada.*—Dr. Dubeau (Montreal), A. E. Webster (Toronto).

*Delegates from United States.*—A. W. Harlan (New York), J. W. Brophy (Chicago).

*Delegates from France.*—R. Heïdé (Paris), B. Platschick (Paris).

*Delegates from Germany.*—Dr. Kühns (Hanover), C. Hiel-scher (Köln), C. Röse (Dresden).

*Delegate from Austro-Hungary.*—O. Zeigmondy (Vienna).

*Delegate from Russia.*—M. Ayarapaa (Helsingfors).

*Delegates from Italy.*—V. Guerini (Naples), A. Chiavaro (Rome).

*Delegate from Switzerland.*—L. G. Bryan (Basle).

*Delegates from Holland.*—J. Grevers, D. Dubourg (Amsterdam), C. Witthaus (Rotterdam).

*Delegate from Belgium.*—E. Rosenthal (Brussels).

*Delegate from Norway.*—O. Smith-Housken (Christiania).

*Delegate from Denmark.*—V. Haderup (Copenhagen).

Letters and telegrams regretting inability to attend were received from E. C. Kirk (the General Secretary, Philadelphia, U.S.A.), E. Förberg (Stockholm), J. von Arkövy (Budapest), J. H. Mummery (London), O. Klingelhöfer (St. Petersburg), Burton Lee Thorpe (St. Louis, U.S.A.), and others.

The President (Professor Miller) welcomed the members of the Federation in a short speech which he rendered in German, English, and French. His remarks were received with applause.

The report of the General Secretary, Dr. Kirk, was then read. It dealt with the work of the Federation since its reconstitution at the International Dental Congress held in St. Louis, U.S.A., in August, 1904, and in its reference to the present constitution stated that 'the representative international character of the F.D.I. was now fully assured by the recent action of the British Dental Association at its Southport meeting in appointing a delegation of five of its most distinguished members to cooperate with the Federation in its future work.' The report described the F.D.I. as essentially an *ad interim* committee of the International Dental Congresses, and dwelt upon the valuable results of its work in the study of problems of dental education, hygiene, and public dental service, as demonstrated at the various annual meetings

of the Federation held respectively in London in 1901, Stockholm 1902, Madrid 1903, St. Louis 1904.

He submitted four proposals, which, if approved of, he said would take the form of standing orders, and be held as binding upon the Executive Council and its Committees until the by-laws could be altered at the next International Dental Congress, which would be held in Berlin in 1909.

A discussion ensued, and resulted in the passing of the following resolutions :

1. The wishes of the National Committees in matters pertaining to their own countries shall be paramount in all things, and no agitation or work of any kind shall be undertaken by the F.D.I. or any of its commissions in any country against the wishes of the National Committee of that country.

2. All appointments in any country as members of commissions or on committees of any nature shall be made under sanction of the National Committee of that country.

3. All National Committees shall seek to obtain the recognition and support of the representative dental organizations of their respective countries, and thereby to act as real representatives of the dental profession of their countries.

4. Applications for membership to the F.D.I. must have either the legal qualifications of the country in which they have received their preliminary education, or of that in which they practise.

An additional resolution, proposed by Mr. Paterson, seconded by Mr. Guy, was also passed, viz. :

5. The reports of the various commissions shall be presented to the Executive Council of the F.D.I. These reports shall be printed and circulated among the members of the Executive Council to enable them to ascertain the views of the National Associations they represent. No

report shall become official until it has been adopted by the Executive Council of the F.D.I.

M. Guye presented a report from the Swiss National Dental Association dealing with the treatment of school children's teeth, and a further report dealing with the subject of dental education in Switzerland. Both reports indicated the progress of dentistry in Switzerland and the increase in public appreciation of the dental profession.

Herr Schaeffer - Stuckert, representing the Central Vereins Branch of the National Dental Association of Germany, reported a paper 'On the Care of the Teeth.'

Professor J. von Arkövy sent a short paper containing his views, which were now in complete accord with the aims and objects of the Federation.

The President communicated the fact that the Professor had recently been the recipient of a mark of royal favour.

Dr. Guerini presented a report upon the conditions under which dentistry is practised in Italy.

Dr. Chiavaro, in supporting Dr. Guerini's statements, said that dentistry for the masses was practised by the Doctors of Medicine, and that dentists with a special training in dentistry were almost non-existent.

Dr. Guerini begged for an expression of opinion from the Council of the F.D.I. upon the question, as he believed it would strengthen the hands of those in the Government of Italy who desired to see dentistry recognised as a profession.

After discussion the following resolution was passed : 'That the Executive Council of the International Dental Federation is unanimously of opinion that the requirements of Italy demand the establishment of properly organized dental schools, curricula, and diplomas.'

A report from Dr. Williams Donnally, of Washington, U.S.A., on 'Naval and Military Dental Service,' was

received and referred to the Commission on Naval and Military Dental Service.

Other reports having special reference to the subjects of Public Dental Hygiene, Dental Education, and Dental Ethics, were referred to the several Commissions dealing with such subjects.

#### COMMITTEES.

##### *Naval and Military Service.*

The names of F. Schaeffer-Stuckert and W. B. Paterson were added to this Committee.

##### *Commission on International Dental Press.*

Mr. Walter H. Coffin (Editor *British Dental Journal*) was nominated a Vice-President of this Committee.

The names of Dr. Johnson (Editor *Dental Review*), M. Roy (Editor *L'Odontologie*), Dr. Aguilar, and Mr. Whittaker were added to this Committee.

##### *Commission on Dental Nomenclature.*

Dr. Grevers, of Amsterdam, was nominated President of the Committee.

The next meeting of the Executive Council will be held at Geneva, Switzerland, on August 8 and 9, 1906, immediately following the meeting of the Central Verein Deutscher Zahnärzte, to be held in Berlin, Germany.

Communications respecting the Federation may be sent to either Edward C. Kirk, Secretary-General of the F.D.I., or to Dr. Sauvez, 45, Rue de la Tour d'Auvergne, Paris.

American Dental Society of Europe. *President*: Dr. Charles J. Monk, Wiesbaden; *Hon. Secretary*: Dr. G. O. Webster, Berlin.

The meeting for 1906 will be held in Berlin.

**Sodium Ethylate**, used in the official form of liquor sodii ethylatis upon perfectly dry tissues, is an efficacious and

painless caustic for superficial polypi and gum hypertrophies, but has been displaced almost entirely by trichloroacetic acid in full strength.

**Sodium Peroxide** (sodium dioxide). *See Peroxide.*

**Sodium and Potassium.** *See Kalium Natrium.*

**Solder for aluminium.** *See Aluminium.*

**Soldering with electricity**, of gold and even platinum, would seem to be a perfectly feasible laboratory process in plate-work, possessing in some cases the enormous advantages of localizing the heat effect so perfectly that plates may be soldered for repair or the attachment of bands, etc., without removal of teeth or other portions secured to the plate by vulcanite or any injury to the vulcanite. And by this method investment of the plate is not required. An instance of the method is stated by *H. M. Hill* in the *D. Era* as follows :

‘The author had recently to repair a denture of gold through which an opposing molar had worn a hole. Ordinarily, this would mean the removing of the teeth, as they were attached to the plate by vulcanite. I repaired this plate by attaching to it the negative wire of the lighting circuit, and to the positive wire a small carbon, cutting in, in series, a bowl of salt water as a rheostat. The hole in the plate was cleaned and prepared in the usual way, then covered with a piece of foil and 18-k. solder placed on it, and borax for the flux. The carbon point was brought in contact with the solder and then gradually removed, forming the arc, which was held sufficiently long to melt the solder. The hole was closed thereby, and the rubber, hardly an eighth of an inch away, was uninjured; and by immediately immersing the plate in water it did not allow the heat to spread to the surrounding parts. The melting of any of the metals—and even of platinum scrap—can be accomplished in the same manner. I have soldered teeth in this way successfully.’



**Soldering in the Furnace.** A convenient and safe method of soldering, especially of heavy work, in the furnace, instead of by blow-pipe, is easy when an electric furnace with a well-graduated rheostat is in circuit. This may be said to be the converse of local soldering with the electric arc, as heat is applied generally to the whole mass instead of locally. The essentials of the process are thus described by *F. W. Stephan* in the *D. Summ.*:

‘Take of filings of an easy-flowing solder and filings of the gold to be soldered or some higher fusing metal about equal parts; also borax and water rubbed up in a mortar or otherwise to make a creamy solution. Mix the filings with sufficient borax solution to make a thick paste. Pack the joint to be soldered with this paste, and heat till fused. This method is especially adapted when large spaces are to be bridged, or where it is desirable to add to a cusp or to contour, or otherwise change the space of a piece in any way. Almost any form desired may be obtained, due allowance being made for shrinkage. The particles of high-fusing metal serve as a support to retain the shape of the mass, and the low-fusing solder acts as a cement when fused to unite these particles.’

**Somnoform.** See also *Anæsthesia, Anæsthetics.*

**South Africa.** See *Africa.*

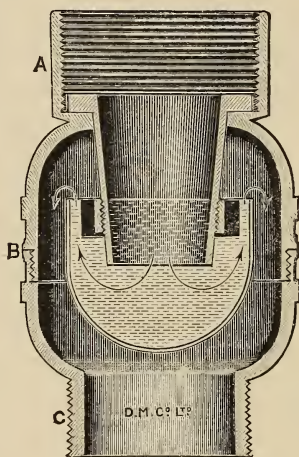
**South Australia.** See *Australia.*

**Sowerby (M. S.).** See *Manufacturers, etc.*

**Spence Metal.** This so-called ‘metal,’ a mixture of approximately 4 parts of sulphur with 6 parts of iron sulphide, has many applications in the laboratory. With a fusing point of 225° F. it can be cast directly into impressions of plaster, or even composition, if at the lowest possible temperature. The resulting model is very fine, hard, but brittle, and for fitting bands, clasps, crowns, etc., is not so easily worn by attrition as plaster. Thin metallic plates can be swaged to it by pressure in any of the

modifications of screw or hydraulic 'water-bag' system swagers. A very good account of its uses and modes of working is given by *E. R. Tebbitt, B. D. J.*, XXV., p. 497. *See also Swaging.*

**Spittoon Traps.** The usual sanitary 'traps' for the waste-pipes of fountain spittoons are generally placed at the lower and further end of a long flexible or other tube, where it is attached to the fixed floor or wall waste-pipe. In this case the whole of the accumulation on the interior of tube is exposed to the room, and, however frequently



SPITTOON, ETC.

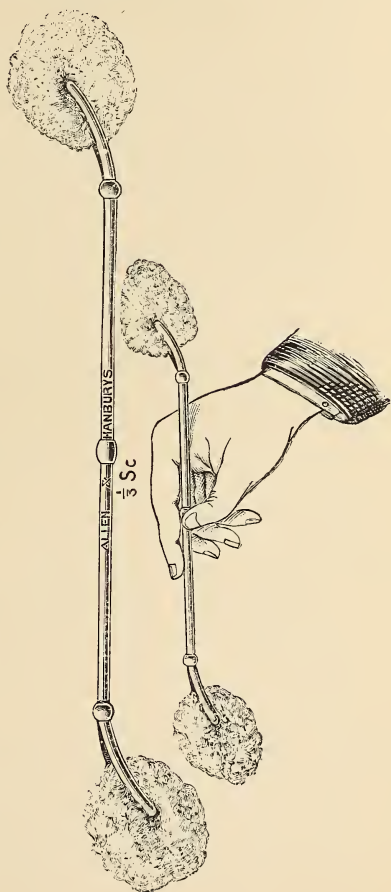
flushed, invariably becomes offensive. A simple little effective trap, which it is stated can be fixed to any fountain spittoon, between the nearer end of the tube and the bowl, is claimed to be so designed that the free flow, not only of water, but viscid fluids, such as mucus or blood clots, is not checked. This arrangement, called a 'fume trap' (as illustrated), is made and patented by the Dental Manufacturing Company.

**Sponge, or Wool-Holder.** A convenient light form of double-ended swab-holder has been designed by *Mr. C. E. Wallis* as a modification of the existing single-ended sponge - holder, and consists of a German-silver rod made in one piece and split for  $5\frac{3}{4}$  inches at each end with a sliding catch to keep the wool or sponge *in situ*. It is unbreakable, very quickly loaded, and easily sterilized.

It is made by Messrs. Allen and Hanburys, Limited, 48, Wigmore Street, London, W.

**Sponge tin,** as a filling material, has been made and used by *Dr. Scheuer*, of Teplitz, who describes his processes in *Oesterreichisch-ungarische Vierteljahrsschrift für Zahnheilkunde*, Vienna, October, 1903. Its preparation is not complicated. The materials employed should be chemically

pure. One hundred grammes of chemically pure stannic chloride are dissolved in 1 litre of water. The precipitation of the tin is brought about by suspending in the solution a plate of chemically pure zinc. The pre-



precipitate must be washed repeatedly, and also boiled until the water shows no cloudiness whatever, the purpose of this thorough washing being to remove all particles of zinc chloride. Stannous chloride does not give the same results, as the precipitate does not have the felt-like structure so desirable for dental purposes. It is easily manipulated, and can be used as a basis upon which crystal gold can be condensed to finish the filling. Occlusal cavities in molars and bicuspid may be filled with sponge tin up to a short distance from the enamel margins, and the operation is concluded by condensing upon this tin foundation a layer of crystal gold. The author remarks that crystal gold is the only kind that becomes thoroughly united with sponge tin, and consequently at least the first layer condensed upon the tin should be of that variety.

**St. Louis Congress.** *See Societies—International Dental Congress.*

**Standard Dental Manufacturing Co., The.** *See Manufacturers, etc.*

**Staple Crown.** *F. L. Marshall.* The basis of an open-face or shell-crown or bridge-attachment is a platino-iridium wire staple, fitted into a continuous occlusal and approximal surface-groove made in the tooth and bedded with cement.

**Stehr (F.).** *See Manufacturers, etc.*

**Stenography and Stenophony, Dental.** *V. Haderup.* For the well-known and almost universal system of the late Dr. Zsigmondy of Vienna, published in 1861, Dr. Haderup proposes a modification which he considers simpler and to present typographical advantages. Retaining the numbers to identify the teeth in their order from the centre or mesial position to distal, he uses the plus sign (+) for the upper or maxillary teeth, and the minus, or −, for the lower or mandibular ones, placing

this sign to the right or left of the number, according as the tooth is a right or left one. Thus, a left lower second bicuspid (Zsigmondy,  $\overline{5}$ ) he would mark - 5 (præmol. ii., inf. sinist.), 8+ being read mol. iii., sup. dext., and so on. *See also Nomenclature.*

[We are not aware that this system, first published in 1887, has been much used.—ED.]

**Stent's Modelling Composition.** *See Marshall* (Stanley W.).

**Sterilization of instruments,** it is generally admitted, cannot be accomplished by chemical agents, as heat seems the only certain destructor of all germs. Many convenient forms of boiling water or steam sterilizers, portable or otherwise, are made and in great demand, the latest form aiming at facility and convenient use at the chair-side being that of Edward Thorn (*B. D. J.*, XXVI., p. 654). As in the routine practice of plain boiling it has become a habit to add a small amount of carbonate of soda with intent to avoid rust on drying, it should be noted that such a solution is destructive to aluminium, now increasingly used, and to such things as impression composition, etc. For keeping instruments sterile it has been proposed to have them continually immersed in a suitable liquid. It is said that solutions of lysol, or saturated solutions of boric acid in dilute formalin, are harmless to steel after prolonged immersion.

— **Of Dentures.** Sulphurous acid solution is recommended for the easy cleaning of all kinds of artificial plates as a toilet routine. *See Asepsis, also Impression Composition.*

**Stomatologiai Kozlony.** *See Journals.*

**Stomatologie, Archives de.** *See Journals.*

—, **La Revue de.** *See Journals.*

**Stomatologist, The.** *See Journals.*

**Student, Edinburgh Dental.** *See Journals.*

**Styptic Colloid.**—The now recognised formula for this is:  
Alcohol 10, benzoin 1, tannic acid 10, ether 40, gun-

cotton 1. It is somewhat troublesome to make. The addition of 20 grains of phenol to the ounce is useful when anæsthetic properties in addition to astringency are required.

**Stypticine.** Cotarnine hydrochloride has been much used and strongly recommended as a routine astringent. It is allied in hydrastinine, and very soluble in water and alcohol. A wool and gauze are made with it. In antral operations it has been found useful. A quarter to half grain has been given internally or by injection for hæmophilia.

**Styptics.** See also **Adrenalin, Quinine, Suprarenal, Hæmostatics, Stypticine.** *Ruggles* on Hæmophilia, discussing usual styptics and astringents, locally or internally administered, finds cases resisting other remedies immediately controlled by a freshly-made solution of suprarenal extract and boracic acid.

A 20 per cent. aqueous extract, with or without chlore-tone or eucaine, injected into tissues before operating will greatly lessen hæmorrhage.

According to *Gabell and Austen*, Mr. Shield recommends for oral operations, applied on sponges, the following emulsion :

℞	Olei terebinthinæ ..	..	..	..	..	℥x.
	Mucilaginis acaciæ ..	..	..	..	..	℥ij.
	Aquam carui ..	..	..	..	..	ad ℥j.
	Misce. Fiat mistura.					

Fluid extract of geranium, according to the *Archives de Thérapeutique*, is an excellent hæmostatic. It can be used locally and internally in doses of 4 grammes (about 64 grains). It contains tannic and gallic acids and gum, and is on this account an anti-hemophilic agent.

An application of great value is said to be :

℞	Tr. benzoin ..	..	..	..	..	℥viiij.
	Alum ..	..	..	..	..	℥j.
	Aqua ..	..	..	..	..	℥x.

Mix and boil six hours, adding hot water to keep volume ; filter and keep stoppered.—*Ohio Dental Journal.*



**Sublamine**, a mercuric-ethylene-diamine-sulphate, is strongly recommended for hand sterilization, as less injurious than the sublimate. It contains 43 per cent. of mercury, is highly poisonous, and used in 1 to a thousand of water. It is but sparingly soluble in alcohol, but freely in water.

**Sulphur Iodide**. A new form or preparation of this (stated to be a yellowish-brown powder) is probably an intimate mixture of carefully pulverized sulphur iodide and precipitated sulphur. It is specially recommended as an ingredient of tooth-powder. *La Odontologia*, July, 1904, abstract in *D. Cos.*, XLIV., p. 1295.

**Summary, The Dental.** *See Journals.*

**Supply Co., The Dental Protective.** *See Manufacturers, etc.*

**Swaging of Metal Plates.** An interesting paper on the flow of worked sheet metal, as demonstrated at the Royal Dental Hospital by *D. M. Shaw*, is in *B. D. J.*, XXVI., p. 593, showing that the principles of metal plasticity are not always properly regarded in the process of adapting plates to models.

Swaging is still thought by experienced and practical mechanicians to be best done by the time-honoured 'striking' method, as the many pressure-swaging devices favoured by some younger men are not considered to give the definite permanent molecular rearrangement produced by the percussive force of the hammer blow. For the striking blow a guided falling weight, set up like a small pile-driver, is regarded as insuring uniformity and certainty of work. Some prosthetic specialists claim that one die of Babbitt metal is sufficient, lead being the usual counter die, though Dr. Haskell uses a finishing one of tin; or in working aluminium, an alloy of lead 5 parts to tin 1 part. This he does not pour until it commences to thicken. Some good workers, however, say they cannot obtain the best results without at least two pairs of dies.

It is claimed by *Dr. J. H. Meyer* that a die composed of tin 6 parts and bismuth 1 part gives more satisfactory results than Babbitt or zinc, having less contraction, and being nearer a perfect counterpart of the model (*D. Cos.*, *XLVI.*, pp. 329, 592).

**Swaging Composition.** This, recently introduced by the Dental Manufacturing Co., is in appearance very similar to Spence metal, black in colour, and extremely hard when set. But whereas 'Spence' has to be very carefully melted by dry heat, the former is readily softened in hot water. In the laboratory it is invaluable for a variety of purposes, and when used with a swaging-flask it does away to a large extent with the need of metal dies. It is claimed that upon this composition may be swaged direct: aluminium base plates; gold, dental alloy, etc.; base-plates up to Nos. 4 and 5, or with 22 carat gold up to No. 6; platinum base-plates, perforated or otherwise, for continuous gum-work; metal strengtheners, all varieties, perforated or otherwise.

**Syringe, Aseptic.** One of the most recent innovations is the 'Sub-Q Aseptic Glass Syringe.' The name 'Sub-Q' is a corruption of the term 'sub-cutaneous.' In dentistry this syringe is an excellent medium for applying pyrozone, hydrozone, dioxogen, or any of the hydrogen peroxide preparations, besides iodine, acids, or other fluid which exerts a corrosive influence upon steel. It is fitted



THE SUB-Q  
ASEPTIC GLASS  
SYRINGE.

with a gold needle, is large enough for use, but sufficiently small to allow the operator a good view of the field of operation. The packing surrounding the plunger is of a mineral nature, which permits of the whole of the syringe being easily and surely sterilized. With its mineral packing and solid gold-curved point, this syringe is absolutely non-corrosive. It can be obtained from Messrs. Ash, Sons and Co.

### T.

**Tablets**, or 'tabloids,' of nearly all the solid drugs and remedies used in dental surgery are now to be had, and those, especially of compound local anæsthetic agents, are extremely convenient for accuracy of dose and securing fresh aseptic solutions.

**Tachiol** (*Fluoride of Silver*), an antiseptic introduced by *Professor Paterno of Rome* (*Durante Il Policlinico*, February, 1902), favourably noticed by *E. S. Yonge* in *J. B. D. A.*, XXIII., p. 480. Said to have greater antiseptic power than corrosive sublimate with less toxicity. In solutions of 1 in 150,000 destroys most resistant pyogenic organisms in a minute. Used in suppurating cavities, but rather irritating except in very dilute solution.

**Tandheelkunde**, *Tidjdschrift voor*. See **Journals**.

**Tandheelkundig Weekblad**. See **Journals**.

**Tandlægebladets**. See **Journals**.

**Tandlægeforenings Tidende**, *Den Norske*. See **Journals**.

**Tanner** (R. and Co.). See **Manufacturers**, etc.

**Tartar**. The protective action of deposits of salivary calculus, suggested by all clinical observation, against ordinary caries was experimentally demonstrated by *Dr. Miller*, who found that a nodule of tartar upon a small portion of the enamel completely protected the incrustated surface until the deposit had itself been dissolved away (*D. Cos.*, XLVI., p. 995).

The thorough removal of tartar deposits, especially in the treatment of pyorrhœa, *C. H. Tozier* considers almost impossible without using the compressed air method for driving the gum away from the teeth, and removing all fragments as they are dislodged. He thinks that otherwise operative attempts, particularly with the push-stroke scalers, often force a large amount of septic matter into the gingival tissues, causing unnecessary inflammation. He describes at great length his method, with a pressure of from 40 to 70 pounds (*D. Cos.*, XLVI., p. 230).

**Teeth.** *See Mineral Teeth.*

**Thiel** (Hermann). *See Manufacturers, etc.*

**Thymaglycine**, a pleasant solution, which may be used undiluted as a mouth-wash, is made as follows: Sodium benzoate 3, glycerine 10, thymol water 50, water to 100, liquor cocci, q.s. Useful as a spray, pigment, or gargle.

**Thymol.** This invaluable remedy in dental therapeutics is, in the solid crystalline form, caustic and irritating to the mucous membrane. It is but very sparingly soluble in water—about 1 to 1,500 cold, or 800 warm; is more soluble in glycerine, and freely in alcohol, ether, etc. The saturated solution in water is strongly antiseptic. For interesting liquefactions *see Menthol*. It finds a place in nearly all proprietary and trade mouth-washes, on account of its pleasant aroma and germicidal qualities. A preparation much used, known as 'Volckmann's Solution,' is: Thymol 1, alcohol 20, glycerine 20. This may be diluted to taste.

*Dr. Theo. Dill*, in *Schweizerische Monatsschrift für Medizin, Chir., Zahnheilk.*, etc. (Basle, October, 1903), commenting on the dental uses of thymol, says:

'This agent, even in concentrated solution, does not exercise any detrimental action on either the hard or the soft tissues of the tooth, and its disinfecting power exceeds

that of any other agent in solutions of a strength that will not affect the oral or dental tissues. Thymol is indicated particularly for the disinfection of root-canals. In the case of diseased and partially devitalized pulps, thymol brings about complete death of the organ without undue pain. In cases of sensitive dentine concomitant with deep caries, the purpose of thymol medication is twofold, inasmuch as it will reduce the sensitivity and will disinfect the pulp. Its use in pulpitis is equally productive of good results, as it reduces the inflammation and the pain incident thereto.

‘For capping exposed pulps, the author recommends a combination of thymol, xeroform, and cocaine. The thymol crystals are rendered liquid by admixture with alcohol, and the two other remedial agents are then incorporated. This method is applicable only in cases of non-inflamed exposed pulps.

‘The author recommends the filling of root-canals with thymol. The canals are filled with the crystals, which are then melted by means of a warm, smooth broach. If the canal should happen to contain pulp-remnants which cannot be removed by mechanical means, the thymol paste will render them harmless.’

**Thymolin.** As a general disinfectant, under this name is sold a mixture of thymol 1, camphor 1, and naphthaline 18.

**Thymolis Iodidum** is now included in the new U.S.P. It contains 45 per cent. of iodine.

**Tims** (A. H. and Co.). *See* **Manufacturers**, etc.

**Tin.** A new filling preparation, as sponge. *See* **Sponge**.

**Tin and Bismuth**, as swaging die. *See* **Swaging**.

**Tooth-powders.** The only novel suggestion as to the constitution of dentifrices is the idea of using the solid peroxides as powder ingredients. Calcium peroxide being among the more stable of the peroxides, it is supposed will keep its oxidizing atom of oxygen for liberation in

the oral fluids. *See Peroxides.* A new trade tooth-powder advertised in America as 'Calox' may possibly embody this notion.

The main idea in prescribing a powder is to have the abrasive element as fine as possible, and the addition of a pure tasteless soap seems to meet with universal approval. *See Soap.* The additional ingredients to flavour are very largely a matter of taste, and it is very doubtful whether any appreciable germicidal effect is produced by anti-septics included, or whether acid oral conditions are neutralized by alkalines as such.

**Tooth-Powders and Pastes.** *Dr. A. André*, Department of Pharmacy, University of Lyons (*L'Odontologie*, Paris, September 30, 1903), says the precipitation of earthy carbonates and phosphates depends upon the alkalinity of the saliva, but as, on the other hand, its acidity is a factor in the causation of caries, a neutral condition may be partly attained by the judicious employment of appropriate tooth-powders.

Dr. André gives lists of agents of respective groups, the following being the more important :

*Therapeutic Agents.*—Sulphur, arsenic, iodine, potassium iodide, sodium hyposulphite, sodium borate, ammonium chloride, neutral lithium carbonate, silver nitrate, strontium carbonate, mercuric chloride, mercurous and mercuric iodide, chromic acid, alum, salol, benzonaphthol, formol, salicylic acid, krameria, etc.

*Antiseptic Agents.*—Boric acid, eucalyptol, carbolic acid, creasote, thymol, aristol, naphthol, hydronaphthol, the essential oils, etc.

*Abrasive Agents.*—Tricalcic phosphate, calcium carbonate, calcined magnesia, magnesium carbonate, powdered pumice, cinchona, etc.

The following formulæ have been published recently :



R	Iodo-sulphur <sup>1</sup>	..	..	..	..	grs. lx.
	Saccharin	..	..	..	..	grs. jss.
	Calcium carbonate	..	..	..	..	grs. cxxx.
	Oil of peppermint	}	..	..	..	āā q.s.
	Carminc					

Misce.

*Dr. Catton, Paris.*

R	Pulvis potassii chloratis	}	..	..	..	āā 3jss.
	Pulvis potassii bicarbonatis					
	Pulvis iridis	}	..	..	..	āā 3iij.
	Pulvis saponis					
	Pulvis ossis sepiaē					
	Pulvis glusidi	..	..	..	..	grs. ij.
	Cretæ precipitatæ	..	..	..	..	3iv.
	Olei menthæ piperitæ	}	..	..	..	āā m̄vj.
	Olei Gaultheriæ					

Misce.

*Gabell and Austen.*

*H. Kuhl* recommends as tooth-paste: Calcium carbonate, 5 parts; soap, 1 part, rubbed up with glycerin and hydrogen peroxide solution, equal parts, to a suitable consistence.

**Transactions,** Proceedings, and Reports of Societies and Associations. *See Journals.*

**Transfer Agents.** *See Schofeild and Jessop.*

**De Trey and Co. (C.).** *See Manufacturers, etc.*

**Trap** for spittoon—'Fume trap' of the Dental Manufacturing Company. *See Spittoon.*

**Trichloracetic Acid** has been found, when in saturated solution, a caustic for destroying hypertrophies of the gum, superior in convenience and efficacy to sodium ethylate or osmic acid. Its action is almost painless, leaving an adherent necrosed slough, which separates easily. It has been thought to have wider uses, and in particular has been tried for dissolving deposits on roots, and assisting in the removal of tartar, etc.; but there is some evidence that it is not without solvent action also on enamel, and therefore should be employed with caution.

<sup>1</sup> A special French preparation. *See Sulphur Iodide.*

**Trigemin** is a compound of butyl chloral hydrate and pyramidon introduced by *Overlach*, who describes it as a specific for painful affections of the cranial nerves. It appears to be particularly effective in pulpitis, in that it alleviates toothache within a short time. It manifests its specific influence likewise in those cases where, despite the use of morphia, cocaine, creosote, etc., the act of devitalizing the pulp gives rise to violent pains. Strauss found these pains to disappear within a few minutes after the administration of 0·6 gramme (grs. 10) trigemin. Koennecke prescribes the preparation, if the introduction of arsenic into the tooth gives rise to pain, in one dose of 0·75 gramme (grs. 12), and was thereby able to suppress the pains within ten to twenty-five minutes. Since trigemin possesses a very bitter taste, it is best administered in wafers or gelatine capsules. Whereas these observers have found the preparation free from undesirable secondary properties, J. Sigel, after administering it in twelve cases of neuralgia of the fifth cranial nerve, toothache, migraine, and sciatica, found it to give rise to a violent occurrence of urticaria in two cases, on one occasion after its administration for eight days, on the other even after one dose of 0·75 gramme (grs. 12).

The preparation appears to be indicated in neuralgia of the fifth cranial nerve, in pain due to pulpitis, periostitis, ascending neuritis, and pains arising in the course of dental operations.

**Tropacocainæ Hydrochloras**, obtained from Java coca. Freely soluble, keeps well, and gives a rapid but more transitory anæsthesia than cocaine. *E. Bellandi*, having used tropacocaine in surgery, and *H. Levy* and *Matthes* in their dental practice, speak of this anæsthetic in terms of satisfaction.

**Tropics.** An article by a dental practitioner in Siam, *Paul T. Carrington*, upon the conditions which affect and

modify dental practice in the tropics, confirms the generally accepted notions of early eruption of the teeth (the first molar appearing occasionally at the age of four), and the rapidity of decay and other oral affections when established (*D. Cos.*, XLVI., p. 975).

**Tulloch** (Andrew and Co.). See **Manufacturers**, etc.

**Turner** (Percival). Transfer Agent for Negotiation of Dental Practices and Partnerships. See **Manufacturers**, etc.

## U.

**Ungarische Stomatologische Zeitschrift**. See **Journals**.

**United States Dental Manufacturing Co., The**. See **Manufacturers**, etc.

**Universities**. See **Education**.

**University Degrees in Dentistry**. See **Degrees and Education**.

**Unqualified Practice**. See **Legal Decisions**.

**Unregistered Practitioners**, Administration of Anæsthetics for. See **Ethics**.

## V.

**Vaccine** or serum treatment of oral disorders, introduced by *Goadby*. See **Pyorrhœa**.

**Vacuum Chamber**, A Modification of, is described by *Dr. A. J. Johnson* (in *Items of Int.*) as follows: When packing the vulcanite, carefully place a strip of semi-soft vellum rubber, one-eighth of an inch wide, around the edge of the metal chamber, and over both lay a piece of thin tinfoil, extending to outer edge of the flexible rubber. Then finish as usual. This will give a flexible border to the air-chamber, with a free edge or lip which keeps the contact when the plate is moved in mastication. It also relieves irritation in tender mouths.

A discussion upon the functions of vacuum chambers, and the best way of constructing and taking advantage of them, appears in *D. Cos.*, XLVI., p. 213.

**Validol**, said to be a solution of menthol in methyl valerianate. *H. Isaac's* investigations have shown validol to be an excellent remedy in stomatitis. Generally it suffices to rinse the affected mouth several times in the course of the day with a mixture formed by briskly shaking up 5 drops of validol in a wineglassful of cold water. The effect is described as striking in such cases even where the patients were scarcely able to open the mouth.

Validol camphoratum is recommended by *C. Fischer* to dentists for the purpose of taking a cast when the patient inclines to nausea. In this case the mouth should be rinsed with water, to which a few drops of camphorated validol have been added, and, if necessary, a stronger mixture may be applied with the brush to the posterior parts of the palate. The application completely obviates nausea.

**Varnish for plaster models**, said to be colourless, elastic, and with a smooth, hard surface, is:

Gum sandarac	..	..	..	..	2 ounces.
Gum mastic	..	..	..	..	1 ounce.
Venice turpentine	..	..	..	..	$\frac{1}{2}$ ounce.
Alcohol	..	..	..	..	5 ounces.

Dissolve slowly. May with aniline dye be coloured to any tint.

**Vestnik, Zoobovrachebny** (*The Dentists' Messenger*). See Journals.

**Victoria Dental Hospital**, Manchester. See Hospitals.

**Vierteljahrsschrift für Zahnheilkunde**, Oest.-Ungar-. See Journals.

**Volekmann's Solution**. See Thymol.

**Vomiting after administration of anæsthetics** may frequently be prevented by replacing the inhaler with a linen cloth steeped in vinegar, allowing it to remain over the face for some time.

**Vulcanite repairing**, without dovetails or undercuts, is thus described by *Eben. M. Flagg* (in *D. Brief*) by the use of kerosine. The usual method of securing a model

of the fractured plate is employed. This completed, the pieces are removed from the model, and the edges to be joined are filed with a coarse vulcanite file. The plaster along the line of fracture is coated with liquid silic, so as to prevent adhering of the wax to the model. Waxing up as usual, the flask is separated and the wax thoroughly removed. This is important, as a drop of kerosene on a fresh cut or roughened surface will be almost immediately absorbed; while, on the other hand, if the vulcanite be polished or at all greasy, quite the reverse will be the case. In packing the rubber, the case is heated and the edges moistened with kerosene; the new rubber, dipped in the oil, is pressed on the moistened surface of the old rubber. Thus the dissolved rubber adheres to the vulcanite; in fact, the new rubber is carried into the vulcanite, becoming an integral part of it. The case is then finished in the usual manner. *See also Repairing Rubbers.*

**Vulcanite Contraction.** According to Dr. S. T. Spence (*D. Cos.*, XLVI., p. 186), as uncontrolled shrinkage of vulcanite is about 0.5 millimetre to the inch, a plate  $\frac{1}{2}$  inch thick at its ridge would there shrink 0.25 millimetre; and as this is about equal to fifteen folds of No. 20 tin-foil, it is clear that the adaptation of such a plate will thereby be very seriously injured.

From further practical experiments, the author found that a bar of this material, 3 inches long by  $\frac{1}{4}$  inch thick, will shrink no less than 1.5 millimetres in length while cooling. He discusses at some length the various precautions which may be taken to prevent or minimize shrinkage. It seems that contraction in a particular direction can be mechanically prevented by strain. *See Aluminium.*

Weighted rubber contracts much less than the ordinary.

**Vulcanite Crowns.** *See Crowns.*

**Vulcanization of Rubber** is in practice scarcely more

advanced than it was by Goodyear, Hancock, and others years ago.

Vulcanization is a change brought about by the action of sulphur above the melting-point of the latter, which is  $237^{\circ}$  F., and the melting-point of the hydrocarbon compound, which is  $248^{\circ}$  F. By continuing from this point to  $250^{\circ}$  F., and for a longer period than is customary, vulcanization can be completed with the best results. Good authority places the limits of working temperature from  $300^{\circ}$  F. to  $600^{\circ}$  F., when the vulcanite is dissipated, sulphur being affected in the same manner at about  $825^{\circ}$  F.

The minimum quantity of sulphur required to bring about the change called vulcanization is something less than 2 per cent., though rubber will combine with its weight of chloride of sulphur—that is about 23 per cent. of sulphur, this being the highest per cent. of combined sulphur possible. *See* **Repairing Rubbers.**

## W.

**Walsh** (A. B. and Co.). *See* **Manufacturers, etc.**

**War Office** and Dentistry.

— Requirements of His Majesty's Military Service as regards the teeth of Candidates for Commissions, issued by the Medical Department of the War Office, April, 1899:

The candidate's teeth to be in good order; loss or decay of ten teeth will be considered a disqualification.

Decayed teeth, if well filled, will be considered as sound.

Artificial teeth not recognised.

— Requirements as regards the teeth of Recruits, April, 1899:

That he possesses a sufficient number of sound teeth for efficient mastication.

The acceptance or rejection of a recruit on account of loss or decay of several teeth will depend upon the con-



sideration of the relative position of those which are no longer effective; thus the loss of several teeth contiguous to each other in the one jaw, leaving none to oppose those in the other jaw, would be a cause for rejection, but not the loss of a similar number distributed between the two jaws and in different positions. Again, the loss of many teeth in a man of an indifferent constitution would point to rejection, while a thoroughly robust recruit who has lost an equal number might be accepted. *See Army.*

**Watts Co., The A. J.** *See Manufacturers, etc.*

**Wax, Removing,** from Investments. In small fragile work *Nyman (D. Cos., XLIV., p. 139)* considers that plaster or other investments for soldering or porcelain fusing are much weakened or distorted by the usual practice of using boiling water. He removes wax by gentle dry heat, mechanically picking out and dissolving residue by chloroform.

— **Method of making Surface Smooth.** A smooth surface on a 'waxed-up case' can be obtained without spoiling festoons or gum carvings by adopting the following method: Smear the surface of the wax with a pellet of cotton saturated in chloroform. Burn off the chloroform with an alcohol lamp or a small Bunsen flame. This will leave a smooth, glossy surface on the wax, and will not destroy previously carved gums (*H. H. HANCOCK, Dental Review*).

**Weekblad, Tandheelkundig.** *See Journals.*

**Weiss and Schwarz.** *See Manufacturers, etc.*

**Weiss and Son.** *See Manufacturers, etc.*

**Welch (J. B.).** *See Manufacturers, etc.*

**Western Dental Journal, The.** *See Journals.*

**Western Dental Manufacturing Co., The.** *See Manufacturers, etc.*

**White Dental Manufacturing Co., The S. S.** *See Manufacturers, etc.*

**Whiteley and Co. (Geo.).** *See* **Manufacturers, etc.**

**Wienand and Co.** *See* **Manufacturers, etc.**

**Wiener Zahnärztliche Monatsschrift.** *See* **Journals.**

**Wife's Debt, A Separated.** In a Scotch action against a husband for dental services to his wife, separated with an allowance, it was held that the allowance paid to her was a good defence.

**Wire Ligatures.** *See* **Ligatures.**

**Wirth (Vve. J.).** *See* **Manufacturers, etc.**

**Wochenschrift, Deutsche Zahnärztliche.** *See* **Journals.**

**Wool, Radio-active.** A new method of employing radium in medicine has been described by *E. S. London*, a Russian physician, which consists of using cotton-wool which has been submitted to the reaction of radium emanation. The result of a series of experiments seems to justify the conclusion that the effects of the radium emanation and of the direct action of the radium are the same, consisting in an inflammation of the skin and a destruction of protoplasm. Wool so treated—which is convenient for easy distribution over the body—when packed in hermetically-sealed jars or other containing vessels, loses its radio-activity very slowly, and can be sent to any distance desired. From a few milligrams of radium a large quantity of wool may be prepared, and thus widely extend the use of a small amount of radium.

**Workmen's Compensation.** *See* **Employers' Liability.**

**World, The Dental.** *See* **Journals.**

## X.

**X Rays.** *See also* **Rontgen Rays, Radiotherapy.**

Concurrently with the recent great advances in the application of X rays to diagnostic and therapeutic uses is the painful experience gained of the serious dangers to both patient and operator from too prolonged and repeated exposures.

Very obstinate and distressing skin troubles are now known to be the penalty paid for the knowledge gained by those zealous and active experimenters who did not sufficiently protect themselves from long bombardment by the mysterious radiations. It is now considered, however, that better precautions, as all the conditions become known, will in the future prevent these accidents. An illustrated communication of interest by *T. Mansell* is in *B. D. J.*, XXIV., p. 818. See **Electro- and Radiotherapy**. **Xeroform (Tribromophenol-Bismuth)**. An insoluble powder of great bactericidal power, recommended for root filling.

## Y.

**Young Dental Manufacturing Co.** See **Manufacturers, etc.**

## Z.

**Zahnarztliche Monatsschrift, Wiener.** See **Journals**.

**Zahnarztliche Rundschau.** See **Journals**.

**Zahnarztliche Wochenschrift, Deutsche.** See **Journals**.

**Zahnarztliche Zeitung, Deutsche.** See **Journals**.

**Zahnarztliches und Zahntechnisches Warenhaus.** See **Manufacturers, etc.**

**Zahnheilkunde, Archiv für.** See **Journals**.

**Zahnheilkunde, Deutsche Monatsschrift für.** See **Journals**.

**Zahnheilkunde, Oest.-Ungar. Vierteljahrsschrift für.** See **Journals**.

**Zahnheilkunde, Journal für.** See **Journals**.

**Zahntechnik, Zeitschrift für.** See **Journals**.

**Zahntechnische Reform, Pawelz's.** See **Journals**.

**Zara (Mikran).** See **Manufacturers, etc.**

**Zeitschrift für Zahntechnik.** See **Journals**.

**Ziegler, Gebrüder.** See **Manufacturers, etc.**

**Zimmermann and Co.** See **Manufacturers, etc.**

**Zinc Acetate** is recommended in the treatment of epulis when in the first stages. See **Epulis**.

**Zinc Arsenite** having been found as an adulterant or con-

tamination of the powders of cement fillings, it has been suggested that this may be responsible for the cases of pulp death under such materials. *Ames (D. Cos., XLIV., p. 1026)*, however, emphatically asserts, as the result of experiments, that this cannot occur.

**Zinc Chloride** in alcoholic and chloroform solution; said to be an efficacious cavity obtundent.

**Zinc, Deterioration in Molten.** 'The addition of 0.001 of aluminium will render zinc very fluid. This process is patented, the patents belonging to the Delaware Metal Refinery Co., who sell an alloy composed of zinc and aluminium to add to the molten zinc just previous to pouring.'

**Zinc Oxychloride** is greatly regaining favour as a root-filling, for which it may be used as a true hydraulic cement without the necessity of thoroughly drying the canal. It is also by many considered superior as a cavity lining to either the oxyphosphate or sulphate. According to *Ames (D. Cos., XLIV., p. 1028)*, it may be hastened in setting, if too slow, by the addition of calcium oxide, but this modification is a deterioration where the cement is exposed.

A very full, practical, and historical account of the use of the zinc oxychloride cements is given by *C. W. Stainton* in *D. Cos., XLVI., p. 106*. See also **Root Filling, etc.**

**Zinc Peroxide**, although insoluble in water, is decomposed with liberation of hydrogen peroxide in the presence of acids. Its use has been suggested in tooth-powders.

**Zoobovrachebny Sbornik** (*Dentists' Magazine*). See **Journals**.

**Zoobovrachebny Vestnik** (*The Dentists' Messenger*). See **Journals**.

**Zubni Lekarstvi.** See **Journals**.

**Zymocide.** A proprietary liquid antiseptic suitable for a mouth-wash.

Resembles generally 'Listerine,' but is colourless, and contains, in addition, golden seal, calendula, and witch hazel. See **Mouthwashes**.

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# THE DENTAL AGENCY

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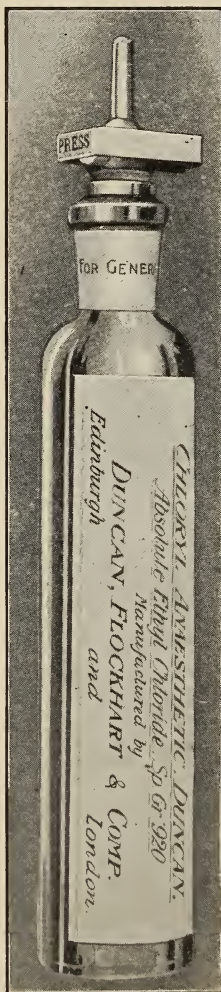
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# **A**utomatic Cylinder for . . . **Chloryl Anæsthetic** (ABSOLUTE ETHYL CHLORIDE).

## **Accuracy of Dosage.**

The tubes are graduated in cubic centimetres, so that any desired quantity can be easily discharged into the Inhaler.

They each contain 60 c.c., and are supplied either closed with metal screw plugs, or with stop-cocks already fitted. In the former case, when the tube is required for use, the plug is carefully unscrewed, and the stop-cock inserted in its place. In warm weather it is advisable to immerse the tube in cold water for a few minutes before removing the screw plug. The stop-cocks are interchangeable, one being sufficient for any number of tubes.



## **Ease of Administration.**

The tube is inverted, and the nozzle of the stop-cock inserted into the supply tube of the "Simplex" Inhaler. Gentle pressure on the end of the band of the stop-cock where the word "Press" is printed, readily discharges the Anæsthetic into the bag.

We recommend Luke's Simplex Inhaler, but Chloryl Anæsthetic can be used with any suitable inhaler.

## **Prices.**

Tubes containing 60 c.c.'s, fitted with stop-cock—General, **4/-** each;

Local, **4/3** each.

Ditto—with plug only, **3/1** each.

Refilling—(either kind), **3/-** each.

Stop-cocks — General, **1/3** each ;

Local **1/6** each.

**To be had from all the principal Dental Depots.**



# DIRECTORY (TOPOGRAPHICAL) OF REGISTERED DENTAL PRACTITIONERS OF THE UNITED KINGDOM

*Names in italics are Members of The British Dental Association.*

- \* = Odontological Society of Great Britain.
- † = Odonto Chirurgical Society of Scotland.
- ‡ = Liverpool District Odontological Society.
- || = Manchester Odontological Society.
- § = North of England Odontological Society.
- ¶ = Sheffield and District Association of Licentiates.

THIS Directory, introduced as a new and leading feature of the DENTAL ANNUAL in 1904, and we believe much appreciated as the only one of the kind published, has again been entirely revised and corrected, not only from the official sources available, but also by the special facilities afforded us, as the proprietors of the *Dental Surgeon*, in directly appealing to the profession, and (as we explain in the Preface to the main portion of the work) by a personal canvas in districts most requiring it, for which we are indebted to Mr. William Prince, our representative.

We are gratified to know that the compilation has already been justified by its service to such public departments as the Army Medical Corps, and the medical staff of the Admiralty, who, under the new regulations, have to employ dentists locally at places distant from a central depot; our intention being, as we fully stated in the first preface of 1904, to indicate immediately, as no other work of reference does, the legal practitioners available in any given town or district.

Hitherto, the only sources of such information have been the separate and not always accessible lists of licentiates and members of certain societies, or the often misleading local press directories. Hence it was difficult, or even actually impossible, to ascertain any names

whatever in a large number of towns where the profession was perhaps well represented by reputable old-established registered practitioners. That this was the case is not only the experience of the organizers of professional union, but is evident from an inspection of the present Directory; and from the consideration that nearly one-half of all legal practitioners are still outside of the licentiate class.

The main purpose of our Directory is to enable dental or medical practitioners to suitably advise (or warn) their patients who may be visiting places where a dentist is not already known to them; to assist those contemplating any negotiations or undertaking in a distant place, and for the information of officials of institutions, societies, etc.

In grateful acknowledgment of the many communications of criticism and advice we have received respecting the future arrangement of the list, it may be pointed out that the inevitable imperfections and discrepancies of a Directory founded upon the official Register are inherent in the latter, and cannot well be avoided if its official nature is respected. The great majority of inquiries and comments which have reached us may be summed up in the question: 'Cannot you distinguish between the *bonâ fide* working dentist and the mere names of those who obtained registration and have either abandoned or never seriously pursued the calling?' The very real nature of this difficulty is instanced by the disappointment natural on finding that in a small town or village scheduled, the several names entered under it may be those of pharmacists, perhaps now otherwise employed, who would hardly at the present time wish to describe themselves literally as dentists. This source of confusion, a yearly diminishing one, will also be minimized by the publicity and discussion of our Directory, some of the difficulties in compiling which are clearly and fully stated by the dental representative upon the General Medical Council in dealing with the correction of the Register, whose remarks we reproduce on another page of the text (*see* **General Medical Council**). It is well known that upon initiation of the present registration, a very large proportion of names were duly entered of men 'in practice with pharmacy,' and described as such in the first number of the Register in 1879. Unfortunately this discrimination was not appreciated, and does not appear again in subsequent Registers since the first one. Identification of these names would be misleading now, and the collection of statistics as to how many had relinquished one or the other profession difficult and invidious. So far as regards Scotland, some interesting figures followed up by Mr. Broughton

Head, of Glasgow (*B. D. J.*, *XXVI.*, p. 15), show that this class of the registered had gradually fallen from nearly 37 per cent. in 1879 to 13 per cent. in 1904 at a rapidly increasing rate, and may be neglected.

Those registered on simple declaration still form nearly one-half of the Register, but as the younger of these are joining the national Association or local societies, by which they gain an indisputable status which can be designated, there is not actually a very serious difficulty in appraisement. It is our aim to scrupulously observe in the Directory any indication of professional position which may guide those who consult it, and every care has been taken, by the ready assistance of the hon. secretaries of the societies we have approached, to do justice in this respect. Omissions are difficult to avoid, and we shall highly esteem the favour of corrections as to names, addresses, local appointments, and membership of professional or scientific dental or medical societies. We have not burdened our list at present with inclusion of well-known appointments held by qualified practitioners, extra professional distinctions, or mention of contributions to literature, though, should this be found to be desired, and the Directory meet with support from the profession, such references (especially with extended summaries in the text of the ANNUAL of special work during the year), would be well worth consideration as an interesting personal feature.

We place after each name first the registrable dental qualification, followed by additional ones to the best of our information, indicating by italics and special marks the membership of societies.

Intimation of any errors of description, population of towns, or omission will be greatly valued.

#### ABERDARE (S. WALES). Pop. 43,857.

George, John Evan, Hirwain, near Aberdare.

Jones, Richard Llewelyn, —L.D.S. Eng., 2, Victoria Square.

*Jones, William Meredith*, —L.D.S. Eng., 2, Victoria Square.

Williams, Daniel Tudor, 90, Gladys Road.

#### ABERDEEN. Pop. 121,910.

Coutts, Charles, 26, Broad Street.

*Cromar, Alexander*, —L.D.S. Edin., 16, Bonnacord Square.

*Cromar, John*, † —L.D.S. Edin., 16, Bannacord Square.

*Crombie, James Melville Paterson*, —L.D.S. Eng., M.B., M.S., 5, Golden Square.

*Crombie, Walter P.*, —L.D.S. Eng., M.B., 5, Golden Square.  
*Cruickshank, George Philip*, 300, George Street.  
*De Lessert, Alfred Alexander*,\* —L.D.S.I., 220, Union Street.  
*Elphinstone, Joseph L.*, —L.D.S. Edin., 229, Union Street.  
*Fearnside, John*, 18, Ashley Road.  
*Mackintosh, Thomas Alexander*, —L.D.S. Edin., 17, Golden Square.  
*Ormiston, George*, 170, Skene Street West.  
*Robertson, William Percival*, 498, Union Street.  
*Soper, Frank Arthur*, —L.D.S. Eng., 16, Golden Square.  
*Sykes, James Hall*, —L.D.S. Eng., 20, Roslin Terrace.  
*Watson, William*, 43, Castle Street.  
*Williamson, William Herbert*,\*† —L.D.S. Edin., M.D., 15, Union Terrace.

ABERGAVENNY (N. WALES). Pop. 7,795.

*Evans, Harry Hudson*, —L.D.S. Eng., 5, Nevill Street.  
*Nicholls, William Henry*, —L.D.S.I., 17, Cross Street.  
*Sandoz, Edwin*, —L.D.S.I., Cedar Villa, Hereford Road.  
*Shackleton, George William*, 61, Frogmore Street.  
*Storrar, Andrew Wynne*, —L.D.S. Edin., Castle View.

ABERYSTWITH (WALES). Pop. 8,013.

*Dalton, Joseph Benton*, —L.D.S. Glas., 23, Portland Street.  
*Murphy, John Arthur*, 54, Terrace Road.  
*Pike, J. L. F.*,\* —L.D.S. Eng., 'Rosario.'  
*Powell, Athelstan Charles*, —L.D.S.I., 24, Portland Street.  
*Rowley, Arthur Lewis*, —L.D.S. Eng., 54, Terrace Road.  
*Rowley, George*, 54, Terrace Road.

ABINGDON. Pop. 6,480.

*Dunkin, Frederick Silas*, 3, Ock Street.

ACCRINGTON (LANCS). Pop. 43,095.

*Cheney, Walter Joseph*, 135, Blackburn Road.  
*Crabtree, Enoch*, 1, Birch Street.  
*Greasley, Henry*, 163, Blackburn Road.  
*Hitchon, William*, 149, Albion Terrace.  
*Lee, William Henry*, 66, King Street.  
*Maden, William Henry*, —L.D.S.I., Rock Lea, Manchester Road.  
*Maden, James*, —L.D.S., Blackburn Road.  
*Sergeant, Robert*, Haworth Terrace, 91, Plantation Street.  
*Sleigh, Randolph*, Warner Street.

ACTON. Pop. 37,744. [See London, W.]

*Tisdall, Charles James*, —L.D.S. Eng., Springfield Lodge, Heathfield Road.

AINTREE (LIVERPOOL). Pop. 500.

*Nixon, A. P.*, —L.D.S., M.R.C.S. Eng., L.R.C.P. Lond., 5, Longmoor Lane.

## AIRDRIE. Pop. 15,135.

*Dunlop, David*, —L.D.S. Glas., 49, South Bridge Street.

*Harvie, John*, 37, Stirling Street.

*Martyn, James*, Robertson Street.

## ALDEBURGH-ON-SEA. Pop. 2,405.

*Cooper, Frederick Thomas*, The Pharmacy.

## ALDERLEY EDGE. Pop. 2,856.

*Kershaw, Edward*.

## ALDERSHOT. Pop. 30,974.

*Dimock, Edward Claude*, —L.D.S. Eng., 85, Victoria Road.

*Marshallsay, Henry George*, 120, Victoria Road.

*Williams, James*, 140, Victoria Road.

## ALFRETON. Pop. 17,505.

*Greensill, Edward Merrick*, Church Street, South Normanton.

*Hitchcock, James*, Green Hill Lane.

*Shaw, Alfred*, Riddings.

## ALFORD. Pop. 2,500.

*Allis, William*, West Street.

## ALLOA. Pop. 10,710.

*Somerville, James Watt*, —L.D.S. Edin., 8, Kelie Place.

*Wallis, Ernest John*, —L.D.S.I., 72, Drysdale Street.

## ALNWICK. Pop. 6,716.

*Flintoff, Churchill*, Hill House.

## ALRESFORD. Pop. 1,540.

*Smith, Edwin Wylde*, —L.D.S. Eng., Manor House, Itchen Abbas.

## ALSAGER. Pop. 2,597.

*Shields, Joseph*.

## ALSTON. Pop. 3,130.

*Storey, Thomas James*.

## ALTON. Pop. 5,480.

*Naish, Godfrey*, —L.D.S. Eng., Beechcroft, Anstey Road.

## ALTRINCHAM. Pop. 17,744.

*Bonnalie, Stanley*,|| Thornfield, Bowden.

*Dykes, Thomas*,|| —L.D.S. Eng., 46, The Downs.

*Dykes, William*,|| —L.D.S. Glas., 46, The Downs.

*Foden, Joel*, 30, Church Street.

*Hughes, John Taylor*,||† 11, Thorleymoor, Ashley Road.

*Hughes, John Taylor, Junr.*,|| —L.D.S. Eng., Thorleymoor, Ashley Road.

*Hughes, Richard Bulkeley*, —L.D.S. Eng., Thorleymoor.

*Unsworth, John Walter*, 113, George Street.

## ALVA. Pop. 5,225.

*McNicol, James*, 70, Stirling Street.

ANDOVER. Pop. 6,509.

Bienvenu, John.

*Morrish, T. B.*, 6, Bridge Street.

ANNAN. Pop. 5,805.

Thompson, Thomas, 5, Ellerslie Terrace, Powfoot.

APPLEBY. Pop. 583.

Atkinson, Thomas, Battlebarrow.

ARMAGH. Pop. 8,300.

*Chapman, Henry Milton*, —L.D.S.I., 6, Melbourne Terrace.

Symons, Nicholas Bray, Russell Street.

ARUNDEL. Pop. 2,739.

Light, George, Granville House, Tarrant Street

ASCOT. Pop. 2,400.

Gear, Alfred Joseph, —L.D.S.I., Glebelands.

ASHBURTON. Pop. 2,620.

Evans, Daniel Ogilvie, West Street.

ASHBY-DE-LA-ZOUCH. Pop. 4,753.

Matthews, Francis Henry, 63, Market Street.

ASHFORD (MIDDLESEX). Pop. 4,816.

Sylvester, Thomas, 2, Canterbury Villas, North Street.

ASHTON-IN-MAKERFIELD. Pop. 18,920.

Aspinall, William, Rockleigh.

ASHTON-UNDER-LYNE. Pop. 40,425.

Elwood, Ezra, 145, Old Square.

Harrop, James, 3, Warrington Street.

*Morrey, Thomas Hill*, || Ashford House, Stamford Street.

Sleigh, John (Junior), 6, Henrietta Street.

ASTWOOD BANK.

Andrews, John Knowles.

ATHY.

Minchen, Francis J.

AYLESBURY. Pop. 9,244.

Chilton, Frank, —L.D.S. Eng., 67, High Street.

Turner, Arthur, —L.D.S. Edin., The Limes, 19, Buckingham Street.

AYR. Pop. 28,833.

Frew, George Frederick, —L.D.S. Glas., 7, Cathcart Street.

Frew, John, 7, Cathcart Street.

*Gillespie, J.*, —L.D.S. Glas., 19, Barn Street.



Hunt, Joseph Pritchard, 17, Charlotte Street.  
*Nash, T. L.*,\* —L.D.S. Edin., 7, Alloway Place.  
*Stirling, John*, —L.D.S. Eng., 23, Wellington Square.

BACUP (LANCS). Pop. 22,505.

Holme, William James, 12, Rochdale Road.

BALLYMENA. Pop. 8,880.

*Garvin, Robert George*, —L.D.S. Edin.

BANBURY. Pop. 12,967.

Bartlett, Hubert, 12, Market Place.

*Brookes, Henry Reginald Fryer*,\* —L.D.S.I. Edin. and Glas.,  
 37, High Street.

Davis, Alfred Thomas, Castle Lodge, Cornhill.

BANFF. Pop. 3,730.

Alexander, William, 57, Low Street.

BANGOR (N. WALES). Pop. 11,269.

*Clarke, Eugene*, —L.D.S.I., D.D.S. Penn., Tan-y-Craig.

Jones, John, 218, High Street.

Jones, Owen Williams, —L.D.S. Glas., Craig Owen.

Owen, Hugh Gwilym, —L.D.S. Eng., 337, High Street.

Webster, Thomas, 241, High Street.

*Williams, George*, —L.D.S. Eng., Rydal Mount.

Wilson, John Addison, —L.D.S.I. and Glas., Pendref, High Street.

BANWELL. Pop. 1,413.

Greatorrex, Edward John.

BARMOUTH (WALES). Pop. 2,213.

Armar, Oswald, —L.D.S. Glas., Sea View.

Williams, Humphrey Wynne, High Street.

BARNARD CASTLE. Pop. 4,340.

*Friend, Herbert Percival*,§ —L.D.S. Edin., Market Place.

BARNOLDSWICK (YORKS). Pop. 7,141.

Jackson and Son, 25, Rainhill Road.

Kendall, Richard, Sussex Street.

Thompson, John, 19, Rook Street.

BARNSLEY (YORKS). Pop. 41,083.

Cook, Charles Richard, 3, St. Mary's Gate.

De Mirimonde, Oscar Charles Pomme, Regent Street.

Eastwood, Lewis, 9, Hopwood Street.

Lambert, John Thomas, 33, High Street, Wombwell, near Barnsley.

Willey, Joseph, King Street, Hoyland, near Barnsley.

Wilson, Arthur Frederick, 103, Dodworth Road.

*Wilson, Joseph William Holy*, 103, Dodworth Road.

*White, E.*, —L.D.S. Eng., Bank Chambers, Market Hill.

BARNSTAPLE. Pop. 14,137.

*Brown, Edward*, 39, Boutport Street.  
*Croot, Horace*, —L.D.S. Eng., 98, High Street.  
*Sanders, Joseph John Huxtable*,\* —L.D.S.I., The Square.  
*Shapland, Hubert Raleigh*, —L.D.S. Eng., Albyns.

BARROW-IN-FURNESS (LANCS). Pop. 57,584.

*Milligan, James*, —L.D.S. Eng., M.B., 79, Clifton Terrace, Abbey Road.  
*Prosser, Benjamin*, 74, Duke Street.  
*Stamper, Harold Askew*, 6, Hartington Street.

BARRY DOCK. Pop. 27,025.

*Cannell, Edward Kemp*, —L.D.S. Eng., 157, Holton Road.

BARTON-ON-HUMBER.

*Hall, F. S. Muspratt*, —L.D.S. Eng., R.C.S.I., Whin House, Horkstow.

BASFORD. Pop. 12,299.

*Edge, Henry John*.

BASINGSTOKE. Pop. 9,793.

*Carey, Frank Russell*, —L.D.S. Eng., 22, London Street.  
*Grubb, Duncan Henry*, —L.D.S. Eng., 29, Wote Street.  
*Story, George Arthur*, —L.D.S.I.

BATH. Pop. 51,845.

*Ackland, Donald*,\* —L.D.S. Eng., M.R.C.S., L.R.C.P., 30, Gay Street.  
*Alford, Thomas*, 10, Clarence Terrace.  
*Allen-Smith, Charles Robert*, —L.D.S. Eng., 4, Edgar Buildings.  
*Carter, Stuart*, —L.D.S. Eng., 4, Edgar Buildings.  
*Davies, David*, 'Lyndale,' Beckington.  
*Dudley, Edmund Lewis*,\* —L.D.S. Eng., 14, The Circus.  
*Eskell, Louis Benjamin*, —L.D.S.I., 13, The Circus.  
*Hall, Reuben*, 8, George Street.  
*Jones, George Willcox*, —L.D.S. Eng., 26, Gay Street.  
*Lewis, James William*, 18, Cheap Street.  
*Lewis, James William*, —L.D.S. Eng., 7, Edgar Buildings.  
*Macdonald, George Ernest*, —L.D.S. Eng., 10, Bladud Buildings.  
*Pidgeon, Henry*, 3, Rockcliffe Road, Villa Fields.  
*Royal, William John*, —L.D.S. Glas., 1A, Queen's Square.  
*Thomas, Henry Joseph*, 29, Belvedere.  
*Tilsley, George*, Thornham Villa, Camden Road.  
*Tuckett, Henry Herbert*, 2, Prince's Buildings.  
*Watkins, H. T.*, —L.D.S. Eng., 14, The Circus.  
*Winckworth, William Dawson*, 6, Prince's Buildings.  
*Woodward, Francis Herbert*, —L.D.S. Eng., 26, Gay Street.

## BATLEY (YORKS). Pop. 29,010.

Grundy, Charles Donald, Branch House, Bradford Road.  
*Taylor, John Newsome*, —L.D.S. Eng., Brunswick Street.  
*Taylor, William*, Brunswick House, Brunswick Street.

## BATTLE. Pop. 2,996.

Arnold, John Cressy, —L.D.S. Eng., 3, St. Mary's Villas.

## BEAUMARIS. Pop. 2,310.

Thomas, Edward R., 40, Castle Street.

## BECKENHAM (KENT). Pop. 26,330.

*Colyer, Arthur Reginald*,\* —L.D.S., M.R.C.S. Eng., L.R.C.P. Lond.,  
 Connaught House, 1, Southend Road.  
*Denham, Norman*,\* —L.D.S. Eng., 29, Albemarle Road.  
 Johnson, Alfred,\* —L.D.S. Eng., 1, Southend Road.  
*Walker, J.*,\* —M.D., M.R.C.S., L.D.S. Eng., 37, The Avenue.  
 Waring, Albert Wynne, 82, Beckenham Road.

## BEDFORD. Pop. 35,144.

Anthony, John Lilley, 24, Kimbolton Road.  
*Bannister, William Hanna*, —L.D.S., R.C.S. Edin., 41, De Pary's  
 Avenue.  
 Biss, John Sydney, —L.D.S. Eng., The Barns, Bromham Road.  
 Biss, John William, 48, High Street.  
 Coltman, Ernest, —L.D.S. Eng., 6, Windsor Place.  
 Davis, Edwin Lawrence, —L.D.S. Eng., 20, St. Peter's Green.  
*Kirby, Alexander*,\* —L.D.S. Eng., 41, De Pary's Avenue.  
 Kirby, Ernest.  
 Kirby, Samuel Amos, —L.D.S. Eng., Humberstone, Goldington Road.  
 Snape, Joseph, —L.D.S. Eng., 18, St. Peter's.  
*Williams, Frederick Wenlock*, —L.D.S. Glas., 20, St. Peter's Green.

## BEDWORTH. Pop. 7,169.

Homer, Absalom, Market Street.

## BELFAST. Pop. 255,895.

Adamson, Peter Campbell, —D.D.S., 6, Castle Place.  
*Agnew, Ezekiel*, —L.D.S. Glas., 1, University Square.  
*Andrew, John James*,\* —L.D.S. Eng., 23, University Square.  
 Balmain, Andrew, 63, Ormean Road.  
 Barnett, Richard, —M.D., M.R.C.S.  
 Bowden, Edwin, —L.D.S. Eng., 9, Wilmont Terrace, Lisburn Road.  
 Bowden, William, 62, Pakenham Place, Dublin Road.  
*Bowden, W. J.*, —L.D.S.I., D.D.S. Phil., 2, University Square.  
 Cameron, David Johnston, —L.D.S. Edin.  
 Carrick, James, 120, Lisburn Road.  
*Craig, A. H.*, —L.D.S. Eng., 'Benvista,' Antrim Road.  
*Cunningham, Charles Maclean*, —L.D.S. Edin., Rostellan, Malone  
 Road, Botanic Gardens.

Duckworth, Frederick, 101, Duncairn Street.

*Elwood, William Henry*, —L.D.S.I., 64, Dublin Road.

Faulkner, William John, —L.D.S. Edin., 7, Cromac Park Terrace, Ormeau Road.

*Fitchie, Thomas Henry*, —L.D.S.I., North Road, Bloomfield.

Hoyland, Samuel, 1, Clive Villas, Antrim Road.

Jago, Walter P., 66, York Street.

James, William, —L.D.S. Glas., 69, University Road.

Matthews, Charles Howard, —L.D.S. Edin., 86, Dublin Road.

*McStay, John*, —L.D.S. Eng., 4, College Square East.

McStay, Patrick Joseph, —L.D.S. Edin., 4, College Square East.

McStay, William, 4, College Square East.

*Paterson, George*, —L.D.S. Edin., 11, Howard Street.

Paterson, James Smith, 11, Howard Street.

*Rankin, D. S.*, —L.D.S. Eng., 67, Great Victoria Street.

*Rea, Thomas James*, —L.D.S.I., Glenfield Place, Ormeau Road.

Shields, William J., 4, Carlisle Terrace.

Tweedie, D. H., Brookvale Terrace, Antrim Road.

*Walby, Alfred George*, —L.D.S. Edin., 132, Albion Place, Dublin Rd.

*Whyte, J. Norman*, —L.D.S. Edin., 119, Great Victoria Street.

BELFORD. Pop. 1,280.

Lind, William.

Marshall, Charles, Castle Hotel, Bamburgh.

BELPER. Pop. 10,422.

*Green, Arthur Thomas*, ¶ —L.D.S.I., West House.

BERKHAMPSTEAD. Pop. 4,900.

*Wood, Charles*, —L.D.S. Edin., Glenthorne, High Street.

BERWICK-ON-TWEED. Pop. 13,437.

Atkinson, Richard John, Parade View.

Riddell, Robert Robeson, 4, Quay Walls.

BEVERLEY (YORKS). Pop. 13,185.

Ashby, Herbert Grimsdale, —L.D.S. Eng.

BEXHILL-ON-SEA. Pop. 5,200.

Meads, William Edward, —L.D.S. Eng., The Turret, Sea Road.

Miller, Joseph, —L.D.S. Edin., 1, Cantelupe Road.

*Robey, Harry Webb*, —L.D.S. Eng., 63, Wilton Road.

BEXLEY HEATH.

Mason, Alfred James, 83, Broadway.

Rogers, David, Medical Hall.

BIDEFORD. Pop. 8,754.

Cook, Horace, —L.D.S. Eng., 6, Bridgeland Street.

Foden, Edwin, Market Place.

BINGLEY (YORKS). Pop. 18,448.

Mawson, Sunderland, Glen View Cottage, Gilshead.

BIRKENHEAD. Pop. 115,165.

*Anderson, Charles Frederick*, ‡ —L.D.S. Eng., 9, Grange Road West, Charing Cross.

Anderson, Harry Adams, —L.D.S. Eng., 9, Grange Road West.

Bennette, Bernard John Taylot, ‡ —L.D.S. Edin., Gothic Lodge, Park Road South.

*Bennette, Horace Willie Paul*, ‡ —L.D.S. Eng., 38, Hamilton Square.

Brown, John Piercy, —L.D.S. Eng., 44, The Woodlands.

*Clibborn, Frederic Hervey*, ‡ —L.D.S. Eng., 2, Christchurch Road.

*Dickens, C. F.*, —L.D.S. Eng., 26, Park Road South.

Dinn, Walter Richard, —L.D.S. Edin., Heather Lee, West Kirby.

*Hodge, J. L.*, || —L.D.S. Eng., 29, Hamilton Square.

Lewis, Nathaniel James, 51, Bedford Road, Rock Ferry.

*Mansell, Thomas*, \*† —L.D.S. Edin., 29, Hamilton Square.

Pott, Frederick Fore, 72, Old Chester Road, Lower Tranmere.

Russell, Richard John, —L.D.S. Eng., 25, Grange Mount.

Shillinglaw, William, —L.D.S.I., 33, Hamilton Square.

*Stelfox, Walter Edmund*, —L.D.S. Eng., 33, Hamilton Square.

*Warlow, George Picton*, ‡ —L.D.S. Edin., 15, Hamilton Square.

Wilkinson, Charles Ernest, —L.D.S. Edin., 30, Hamilton Square.

Wilkinson, Samuel, 30, Hamilton Square.

Zachary, Samuel John, —L.D.S. Edin., 16, Hamilton Square.

BIRMINGHAM. Pop. 522,182.

Alexander, William Robert, 18, New Street.

Allwood, Henry Joseph, 50, New Street.

*Amphlett, Donald*, —L.D.S. Eng., 54, Frederick Road, Edgbaston.

*Apperson, Albert Ernest*, —L.D.S. Glas., 19, Hamstead Road, Handsworth.

Austin, Josiah, 395, Nechells Park Road.

Austin, William, 395, Nechells Park Road.

Batche'or, Frederick Robert, —L.D.S.I., 100, Stratford Road.

Bates, Herbert Astley, —L.D.S. Eng., 525, Coventry Road, Small Heath.

Bates, John, 214, High Street, Deritend.

Bowater, William Henry, 207, Broad Street.

Bowater, William, —L.D.S. Eng., M.R.C.S., L.R.C.P. Lond., 207, Broad Street.

*Britten, Arthur*, —L.D.S. Eng., 11, Bennett's Hill.

Broderick, Frederick William, —L.D.S. Eng., Garthlands, Salisbury Road, Moseley.

Brown, Richard, Manor House, Spring Hill.

Browne, Anthony, 85A, Edmund Street.

*Cale-Matthews, G. F.*, —L.D.S. Eng., 19, Easy Row.

Campion, Henry, Midland Buildings, 2, New Street.

- Careless, John, 63, High Street, Harborne, near Birmingham.  
*Cave-Brown-Cave, Frank W.*, 24, Bennett's Hill.  
*Dixon, Arthur Harvey*, —L.D.S. Eng., 70, Cornwall Street.  
*Donagan, Alfred Edward*, —L.D.S. Edin., 7, Newhall Street.  
 Doubleday, John Lloyd, —L.D.S. Eng., 172, Golden Hillock Road,  
 Small Heath.  
 Dunnett, Harry.  
 Edwards, George William H., Mole House, Stratford Road.  
*Elliott, William Thomas*, —L.D.S.I., L.D.S. Ed n., 65, Temple Row.  
 Fisher, Sidney, 15, Birchfield Road, Aston Manor.  
 Fisher, Sidney Brown, —L.D.S. Glas., 15, Birchfield Road.  
*Fitter, S.*, —L.D.S. Eng., 24, Upper Hagley Road, Edgbaston.  
 Foster, Frederick Francis, 80, Navigation Street.  
*Foster, George*, —L.D.S. Glas., 30, Paradise Street.  
 Foster, James Alfred, 9, Wheeler Street.  
 Freeman, John, 108, Icknield Street.  
*Gabell, Ernest Frederick*, 55, Hagley Road, Edgbaston.  
 Geary, Edwin, Glenfield.  
 Glanvill, Robert Hope, 120, St. John's Road, Sparkhill.  
*Goffe, Frank Hampton*, —L.D.S. Edin., L.D.S. Eng., 9, Newhall  
 Street.  
 Gregson, Elias, 1, Clarendon Terrace, Chorley Road, Swinton.  
 Hadley, Thomas, 3, Edmund Street.  
 Hadley, William, 3, Edmund Street.  
 Harding, Leon, 161, Pershore Road, Edgbaston.  
*Harris, James Henry*, —L.D.S. Glas., 137, Whitehall Road.  
 Harrison, William, Sellebley, Greenfield Road, Harborne.  
 Harvey, Philip Henry, —L.D.S. Glas., 322, Hagley Road.  
*Hawkes, John James*, —L.D.S. Eng., 83, Edmund Street.  
*Hilder, Albert Thomas*,\* —L.D.S. Eng., 83, Edmund Street.  
 Horton, William Henry, 14, Bennett's Hill.  
 Horton, John Joseph, —L.D.S. Eng., 305, Stratford Road, Sparkbrook.  
*Howard, Frederic Richard*, —L.D.S. Eng., 54, Newhall Street.  
*Howkins, Cyril Henry*, —L.D.S. Eng.  
 Hughes, Robert Owen, 330, Dudley Road.  
*Humphreys, John*, —L.D.S.I., 149, Edmund Street.  
*Huxley, Frank Earle*,\* —L.D.S. Edin., M.R.C.S. Eng., 23, Waterloo  
 Street.  
*Joscelyne, Harry Percy*, —L.D.S. Eng., 17, Waterloo Street.  
*Knott, William Malcolm*, —L.D.S. Glas., 83, Edmund Street.  
 Lamb, Harry Corlyon, 83, Edmund Street.  
 Lucas, Joseph, 101, Gladstone Road, Sparkbrook.  
*Madin, William Thompson*, —L.D.S. Glas. and Eng., 110, Edmund  
 Street.  
 Marten, Alfred Ernest, —L.D.S. Eng., 30, Wilton Road, Sparkhill.  
 Matthews, Henry Edward, —L.D.S. Glas., 269, Stratford Road.  
 Meanley, Samuel John.  
 Miller, Arthur Dixon, —L.D.S.I., M.R.C.S., L.R.C.P., Cornwall  
 Chambers, Cornwall Street, Newhall Street.



- Mountford, James*,\* —L.D.S. Eng., 24, Bennett's Hill.  
*Naden, Percy Thomas*, —L.D.S. Glas., L.S.A., 22, Temple Row.  
*Neal, Thomas Taylor*, 279, Great Colmore Street.  
*Neale, William Henry Breward*,\* —L.D.S.I., 7, Newhall Street.  
*Nicholls, Arthur Ernest*, —L.D.S. Eng., 108, City Road.  
*Orrock, George Dall*, —L.D.S. Edin., L.R.C.S. Edin., 31, Waterloo Street.  
*Parrott, Arthur Hughes*, —L.D.S. Eng., 87, Cornwall Street.  
*Parrott, John Ernest*, —L.D.S. Eng., 87, Cornwall Street, Newhall Street.  
*Pickerrill, Henry Percy*, —L.D.S. Eng., 264, Allcester Road.  
*Reeve, Norman*, —L.D.S. Eng., 18, Bennett's Hill.  
*Richards, Frederick William*,\* —L.D.S. Eng., 54, Newhall Street.  
*Robberds, Edwin Albert*, Acock's Green, near Birmingham.  
*Robberds, Edwin Charles*, —L.D.S. Glas., Acock's Green, near Birmingham.  
*Roe, Samuel Henry*, —L.D.S. Eng., 19, Easy Row.  
*Rose, Henry Edmund*, —L.D.S.I., Hamstead Road, Handsworth.  
*Round, Harold*, —L.D.S. Eng., M.D.S. Birm., 141, Great Charles Street.  
*Scott, Frank*, —L.D.S. Eng., Mole House, Stratford Road.  
*Sergison, Charles Henry*, 122, Loyell's Road, Aston.  
*Seymour, James Alfred*, —L.D.S. Eng., 3, Great Charles Street.  
*Shilton, Edmund*, 61, Soho Road, Handsworth.  
*Smallwood, George Valentine*, —L.D.S. Eng. [Park.  
*Smith, Samuel Edwin Lambert*, Rugby House, Park Road, Aston  
*Sparshott, Harry*, 488, Coventry Road.  
*Spencer, Joseph*, 11, Bristol Road.  
*Thomas, Charles Browne*, —L.D.S. Eng., Winchester House, Victoria Square.  
*Thompson, William*, 133, Summer Lane.  
*Tomey, E. V.*, 86, Trinity Road, Handsworth.  
*Tomlinson, George Dean*.  
*Trow, Alfred Gibson*, 287, Stratford Road.  
*Turner, John William*, —L.D.S.I., 27, Temple Row.  
*Vaughan, John William*, —L.D.S. Glas., 49, High Street, Harborne.  
*Ward, Arthur*, 71, Bull Street.  
*Warmington, Thomas*, —L.D.S. Glas., 22, Temple Row.  
*Watson, Henry William*, 112, Soho Hill, Handsworth.  
*Watson, William John*, 8, New Street.  
*Weaver, Theophilus*, 53, Edward Street, Parade.  
*Wellings, A. W.*, —L.D.S. Edin., 24, Bennett's Hill.  
*Westwood, John*, —L.D.S.I., M.R.C.S., Cornwall Chambers, Cornwall Street, Newhall Street.  
*Whitehead, Albert William*, 11, Bennett's Hill.  
*Whittles, John Dencer*,\* —L.D.S. Eng., 17, Summer Row.  
*Windle, John Thomas*, Vicarage Road, Smethwick.  
*Wood, Charles Carey*, —L.D.S. Eng., 149, Edmund Street.

Wright, Eli, —L.D.S. Glas., 162, Aston Road.  
*Youngson, J. S.*, —L.D.S. Glas., 41, Newhall Street.

BISHOP AUCKLAND. Pop. 11,966.

Badcock, Cecil Edgar, —L.D.S. Eng., Thornfield.  
*Chapman, Charles*, Cockton Hill.  
*Spedding, J. R.*, —L.D.S. Glas., Killerby House.  
*Townend, John*, —L.D.S., 104, Newgate Street.  
 Townend, Thomas Francis, 104, Newgate Street.  
 Veitch, Thomas Dennison.  
 Vincent, G. G., 22, South Road.

BISHOP'S STORTFORD. Pop. 5,326.

Mardon, Frederick William, —L.D.S. Eng., The Folly, Northgate End.  
 Mardon, Percy B., —L.D.S. Eng., Emscote, Grange Road.

BLACKBURN (LANCS). Pop. 127,527.

Bennett, H., —L.D.S., R.C.S. Edin., King William Street.  
 Burrows, Willson Brailsford, 57, Preston New Road.  
 Garland, Alfred Philip, 80, King William Street.  
 Greasley, Arthur William, 5, Simmons Street.  
 Hacking, Thomas James, 8, Park Terrace.  
 Hargreaves, Joseph Jackson, 16, Preston New Road.  
 Hodgkinson, Anthony, 32, Higher Eanam.  
*Pritchard, Francis Edwin*,\* —L.D.S. Eng., Eversley, Preston New Road.

BLACKPOOL (LANCS). Pop. 47,346.

Broughton, William, 26, Moore Street, South Shore.  
 Greenhalgh, John Howard, Peel Cottage Promenade, South Shore.  
 Laurie, John, 2, Lytham Road.  
 Lewthwaite, Samuel, 1, Park Road.  
 Lukyn, Percy C., 31, Talbot Road.  
 Moore, John, 46, Queen's Gate, Claremont Park.  
 Stell, James, 53, Topping Street.  
*Whittington, John*, May Bell Avenue.  
 Whittington, John Albert, —L.D.S. Eng., 4, Parker Street, Queen Street.  
*Whittington, William Borrett*, —L.D.S. Eng., 16, Albert Terrace.  
*Wilkinson, William Franklin*, — L.D.S. Eng., 49, Abingdon Street.

BLAENAU-FESTINIOG (N. WALES). Pop. 11,435.

Owen, Owen, —L.D.S. Eng., Llys Dorvil.

BLAENAVON (WALES). Pop. 10,869.

Davies, Henry Morgan, 70, Broad Street.

## BLYTH. Pop. 6,481.

Carswell, Allan McCowan, 48, Stanley Street.

## BODMIN. Pop. 5,353.

Belling, George Fisher, 20, Fore Street.

Brewer, William Richards, 52, Fore Street.

## BOGNOR. Pop. 5,353.

*Sams, Virley S.*, —L.D.S. Eng., Prestholme, Sudley Road.

## BOLTON (LANCS). Pop. 162,220.

Andrews, Peter, 274, Lever Street.

Barnes, William, 10, Chorley Old Road.

Bethell, Arthur, 33, Ulleswater Street, Blackburn Road.

Budworth, William Seth.

*Cardell, George Parminter*, || —L.D.S. Eng., 177, Chorley New Road.

Dickinson, Robert, 54, St. George's Road.

Fraser, James Francis, 19, Hibbert Street.

Harper, Albert, 79, Bury New Road.

Healey, Joseph, 86, Derby Street.

Healey, Joseph, jun., 187, St. George's Road.

Horrocks Francis Walsh, —L.D.S. Eng., Springfield Street, George Road.

Horrocks, James, 169, Derby Street.

Monk, William, 64, St. Helen's Road.

Patterson, Alexander Peel, 63, Bradshawgate.

Pierrepont, Claude, 126, St. George's Road.

Watkinson, John William, Kearsley, Farnworth.

*Wood, Thomas Holroyd*, || —L.D.S. Glas., 169, Derby Street.

Wright, William, 11, Blackburn Road.

Wright, William, —L.D.S. Eng., 18, Blackburn Road.

## BOLTON-LE-MOORS.

Crompton, James Hamer, Beaufort House, Horwich.

Watkinson, James, 29, Bolton Road, Walkden.

## BOSTON. Pop. 14,590.

Chappell, John, Boston Spa.

*Smith, Edward Percy*, —L.D.S. Eng., Lindum House.

*Smith, Edward Smith*, Lindum House, 27, Wide Bargate.

## BOURNEMOUTH. Pop. 47,000.

*Ackland, Charles Herbert*, —L.D.S., M.R.C.S., L.R.C.P. Lond., Moorland Court.

*Appleton, James Enderby*, —L.D.S., M.R.C.S., L.R.C.P. Lond., Linda, Poole Road.

*Balcomb, Thomas*,\* —L.D.S.I., 278, Christchurch Road, Boscombe.

*Ball, Arthur Edwin*, 104, Christchurch Road, Boscombe.  
*Bascombe, Ernest Dare*,\* —L.D.S. Eng., Melford Lodge, St. Stephen's Road.  
*Branson, Alfred*, —L.D.S. Edin., Rotherwood, Avenue Road.  
*Curtis, Ernest Arthur*, —L.D.S. Eng., Edgemoor.  
 Garnett, Herbert Bellamy, The Square.  
 Hall, John Thomas, Grafton Lodge, Surrey Road.  
 Harris, Cecil Wakefield, Kingsholme, Boscombe Hill.  
 Harris, Underwood Arthur Carpenter, —L.D.S., M.R.C.S. Eng., Seabourne House, East Cliff.  
 Higgs, Alfred Henry, Fewhurst, Christchurch Road, Boscombe Park.  
*Hogue, Thomas Wilson*, —D.D.M. Harv., Vermont, Dean Park.  
 Hooper, Herbert Prestbury, —L.D.S. Eng., Linda, Poole Road.  
*Kempe A. Marshall*, —L.D.S. Eng., 104, Christchurch Rd., Boscombe.  
*Moore, Joseph*, Melford Lodge.  
*Morris, Lionel Frederick*,\* —L.D.S. Eng., Poole Road.  
*Payne, Arthur George*,\* Netley, Old Christchurch Road.  
 Pritchard, Edward Francis, 210, Christchurch Road.  
*Rowe, Henry Burbery*,\* —L.D.S. Eng., Pine View, Boscombe.  
 Seville, John William,\* —L.D.S. Eng., Pine Glen, Spencer Road.  
*Steele, Tom Barton*, —L.D.S. Eng., Muriel, Exeter Road.  
 Stevens, Peter Augustus, Glenfield, Lowther Road.  
 Thompson, John, 4, Queen Anne Gardens, St. John's Wood Road.  
*Umney, Reginald*,\* —L.D.S. Eng., Linda, Poole Road.  
 Vinson, William.  
*Ward, Frank*, —L.D.S. Eng., Kingsholme, Boscombe Hill.  
 Webb, Deane Godfrey, —L.D.S.I., Bank Chambers.

BOURNEVILLE. [See Birmingham.]

Pass Horace, 71, Willow Road.

BOURTON-ON-THE-WATER. Pop. 1,460.

Clark, Willoughby, Kirkham Farm, Upper Slaughter.

BOWDEN. Pop. 2,788.

Bonnalie, Stanley, —L.D.S. Eng., Thornfield, Delamere Road.  
*Dykes, T.*, —L.D.S.E., 46, The Downs.  
*Dykes, W.*, —L.D.S. Glas., 46, The Downs.

BRADFORD (YORKS). Pop. 279,809.

Barnby, Thomas Bayldon, —L.D.S.I., 158, Manningham Lane.  
 Bell, Harry, 206, South View, Lilycroft Road, Manningham.  
*Bottomley, James Herbert*, —L.D.S. Glas., 37, Little Horton Lane.  
 Brookesbank, Hiram, 40, Drewton Street.  
*Cooper, Charles Henry*, —L.D.S.I., 32, North Parade.  
 Crabtree, Jabez, Mill Street, Cullingworth.  
*Dalton, John Willie*, —L.D.S. Eng., 7, Manningham Lane.  
 Dennison, Robert, 148, Lumb Lane.

- Eales, William, 130, Lumb Lane.  
Ellison, Albert Ernest, 140, Westgate.  
Faull, John, 206, Westgate.  
Fielding, Aaron, 1, Gladstone Street, Leeds Road.  
Firth, Walter, 32, Horton Lane.  
Forshaw, Charles Frederick, —LL.D., F.R.S.L., 26, Hanover Square.  
Galloway, James Henry, 21, Clive Place, Great Horton.  
Galloway, Josiah, —L.D.S.I., Cross Lane House, Cross Lane, Great Horton.  
*Galloway, N.*, —L.D.S. Eng., Cross Lane House, Great Horton.  
*Greenwood, Richard Murgatroyd*, 2, Mannville Terrace, Horton Road.  
Heaton, Elias, 27, Manningham Lane.  
Holmes, Levi, 34, Peel Square, Lumb Lane.  
*Holt, Reginald Crompton*, —L.D.S. Eng., 27, Manningham Lane.  
Humby, John, 1, Grove Terrace, Horton Road.  
Jefferson, Alfred, 164, Manningham Lane.  
*Jefferson, William Lonsdale*, 43, Manningham Lane.  
*Jones, William Gresley*, —L.D.S.I., 45, Horton Lane.  
*Ladmore, Edwin John*, —L.D.S. Edin., Blenheim House, Manningham Lane.  
*Lee, Josiah*, 1, Mount Royd, Manningham Lane.  
Lister, Simeon, 70, High Street, Great Horton.  
*Mahony, Henry*, 214, Otley Road.  
Matthews, Alfred Marston, —L.D.S. Eng., 12, North Parade.  
*Matthews, Arthur Alexander*,\* —L.D.S. Eng., 12, North Parade.  
Mawson, Cato, 48, Horton Lane ; also at Cavendish Street, Keighley.  
Mundell, William, 6, Carlisle Place, Manningham.  
North, Benjamin, —L.D.S. Eng., 21, Fair Road, Wibsey.  
Parker, Samuel, 360, Leeds Road.  
Parkinson, T. T., 78, Bolton Road.  
Pearce, Eli, 8, Hoxton Street, Girlington.  
Shackleton, George, 25, Edmund Street, Horton Lane.  
Silson, Richard Walker, 113, Church Street, Manningham.  
Sloane, George Greenshields, —L.D.S.I., 5, Eldon Place.  
Smith, Robert Gay, 41, Little Horton Lane.  
*Stephenson, Thomas*, —L.D.S. Eng., 5, Eldon Place.  
*Stoner, John Walton*, —L.D.S. Eng., Hazelhurst, Leeds Road.  
*Sutcliffe, Arthur*, —L.D.S. Glas., 61, Whetley Lane.  
*Sutcliffe, Herbert Walton*, —L.D.S.I., 30, Horton Lane.  
Sutcliffe, William Arthur Oddy, —L.D.S.I., 11, Manningham Lane.  
*Thew, Thomas Wilton*, —L.D.S. Eng., 12, North Parade.  
Thornton, Alfred, 605, Leeds Road.  
Tidswell, Frederick, 40 and 42, Main Road, Denholme.  
*Tidswell, Thomas*, 35, Manningham Lane.  
*Townend, Edmund Francis*, —L.D.S. Eng., 1, Cliff Villas, Manningham.  
Umney, R., —L.D.S. Eng., 'Linda,' Poole Road.

Waddington, Herbert, 47 New Road, Thornton.  
Woodhead, Hartwell, 54 and 56, Folly Hall Road, Wibsey.  
Woodhead, Thomas, 54 and 56, Folly Hall Road, Wibsey.

BRADLEY. Pop. 1,359.

Chapman, Charles.

BRAINTREE.

Fuller, Harry Wardlaw, —L.D.S. Eng., The Avenue.

BRAUNSTON. Pop. 834.

Tiptaff, Thomas Crowden.

BRAY. Pop. 6,900.

Bradshaw, William, Erin Cottage, Convent Road

BRECHIN, N.B. Pop. 4,816.

Bower, David, 33, Market Street.

Macduff, William Saunders, 55, South Esk Street, St. Ninian's Square.

BRENTFORD. Pop. 15,171.

Wood, Edward James, 116, High Street.

BRENTWOOD. Pop. 4,932.

Brimmer, Arthur Vidler, —L.D.S. Eng., Thought Cottage, Queen's Road.

Hutchinson, Percy Bishop, 1, Queen's Road.

BRIDGEND (S. WALES). Pop. 6,063.

Jenkins, David, Wyndham Street.

BRIDGWATER (SOM.). Pop. 12,430.

Bouchier, William, Eastover.

Brameld, Clement Neville, King Square.

Hickman, William, Eastover.

Phillips, William Herbert, —L.D.S. Eng., 2, King Square.

Shuffrey, John Clement, 3, King Square.

*Wellings, Alfred William*, —L.D.S. Edin., 2, King Square.

BRIDLINGTON (YORKS). Pop. 12,473.

Bradford, George Henry, Springfield House, The Quay.

Gatenby, Robert, 19, High Street.

Nottingham, Thomas, —L.D.S.I., The Mount, Manor Street.

Wardill, Frederick William, 9, Prospect Street, The Quay.

BRIDPORT. Pop. 6,610.

*Palk, William*, —L.D.S.I., St. Andrew's.

BRIGHOUSE (YORKS). Pop. 21,735.

Whiteley, Thomas, 7, Gooder Lane.



## BRIGHTON. Pop. 123,228.

- Bathe, Robert Samuel, 46, Beaconsfield Villas.  
*Beckley, Augustus*, —L.D.S. Glas., 68, Buckingham Road.  
*Bollard, W. J.*, —L.D.S. Eng., 60, Rutland Gardens.  
 Bromley, Francis, —L.D.S. Edin., 30, York Place.  
 Brown, Charles Every, —L.D.S. Eng., 63, Grand Parade.  
*Caush, Douglas Edward Nicholls*,\* —L.D.S.I., 63, Grand Parade.  
 Churchill, Henry, 57, East Street.  
 Costerton, Horace Arthur, 90, Western Road.  
*Dennant, John*, —L.D.S. Eng., 15, Cambridge Road, Hove.  
 Ditch, Doren, 20, Powis Square.  
*Elliott, Thomas Henry*, 45, Stanford Road.  
*Erby, W. H.*, —L.D.S. Glas., 9, Waterloo Place.  
 Feltham, Robert Era, 7, Hove Villas, West.  
 Fox, Octavius Annesley, —L.D.S. Eng., 30, De Montford Road.  
 Gabell, Reginald Hopgood, —L.D.S. Eng., 47, East Street.  
 Germain, Arthur Frederick, 31, Old Steine.  
 Gibbons, John Franklin, 61, Old Steine.  
 Gibbons, Sills Clifford, —L.D.S. Eng., 61, Old Steine.  
 Greenslade, Charles Joseph, Halstow, Palmeira Terrace.  
*Gwatkin, Archibald James*, —L.D.S. Eng., 139, Western Road.  
 Hancock, William Henry, 60, Tisbury Road.  
*Harrison, Walter*,\* —L.D.S. Eng., 6, Brunswick Place, Hove.  
 Hickley, George, 92, Springfield Road.  
 Histed, Edward, 2, Upper St. James's Street.  
*Johnson, Sydney Perrins*, —L.D.S.I., 65, St. John's Terrace, Hove.  
 Knott, Edwin Henry, —L.D.S.I., 13, Old Steine.  
*Lambert, Athol Lucien*, —L.D.S. Eng., 98, Montpelier Road.  
*Lambert, Francis Ernest Lewis*,\* —L.D.S. Eng., 98, Montpelier Road.  
 Lambert, Lewis, 179, Western Road.  
 Langridge, William Anthony, Carlisle House, Pavilion Buildings.  
*Martin, B. H.*, —L.D.S. Eng., 29, Marine Parade.  
*Maurice, H.*,\* —L.D.S. Eng., 65, St. John's Terrace.  
*Messent, R. J.*, —L.D.S. Eng., 42, Eton Place.  
 Moore, Frederick Walter, 39, Preston Road.  
 Muhlenkamp, Fritz Heinrich Arthur, —L.D.S. Eng., 28, Grand Parade.  
*Ness, Kenneth Carrington*, —L.D.S. Eng., 28, Old Steine.  
*Norris, Edward Lewington*, —L.D.S. Eng., 8, Cambridge Road, Hove.  
 Pain, George Daniel, 18, Regency Square.  
 Peatfield, Henry, 13, St. George's Place.  
*Peatfield, William Henry*, —L.D.S. Eng., 13, St. George's Place.  
 Peckover, Charles Edward, —L.D.S. Eng., 8, Pavilion Parade.  
 Pilbeam, Edward L., —L.D.S. Eng., 31, Southdown Avenue, Preston Park.  
 Price, William Henry.  
*Read, Stanley*,\* —L.D.S. Eng., 12, Old Steine.  
*Richardson, Frank Victor*, —L.D.S. Eng., 15, Cambridge Road, Hove.

*Roberson, Alfred*, 17, Sackville Road, Hove.  
*Rymer, James Francis*,\* —L.D.S. Eng., M.R.C.S. Eng., 13, Old Steine.  
 Slann, David William, 2, Rose Hill Terrace.  
 Smith, Walter Henry, 191, Eastern Road.  
 Smithson, John, 1, Preston Road.  
 Spurgeon, Le M., —L.D.S., Eng., 8, Pavilion Parade.  
 Stoner, Alfred Buckwolde, —L.D.S. Glas., 5, Norfolk Square.  
*Stoner, Charles Berrington*, —L.D.S. Glas., 24, Holland Road, Hove.  
*Stoner, Harold Boniface*,\* —L.D.S. Eng., 18, Regency Square.  
 Stoner, John Nathan, —L.D.S.I., 18, Regency Square.  
*Styer, Albert St. John*, —L.D.S. Eng., 25, Old Steine.  
 Styer, Leonard Reuben, 25, Old Steine.  
*Tasker, Benjamin George*, —L.D.S. Eng., 12, Goldstone Villas, Hove.  
*Tessier, Chas. Padgett*, —L.D.S. Eng., 2, Palmeira Terrace, Hove.  
 Tocher, George, 14, St. George's Place.  
 Visick, H. C.,\* 11, Goldsmid Road.  
*Wood, John*, —L.D.S.I., 21, Old Steine.  
*Wood, Walter Robert*,\* —L.D.S. Eng., M.R.C.S., L.R.C.P., 21, Old Steine.  
*Wormald, W. J.*, —L.D.S. Eng., 1, Pavilion Buildings, and 16, King's Road.

BRISTOL. Pop. 300,911.

*Ackland, William Robert*,\* —L.D.S. Eng., M.R.C.S., 5, Rodney Place, Clifton.  
 Boulter, William Ernest. —L.D.S. Eng., 1, Whatley Road, Clifton.  
 Clarke, Isaiah William, Jun., —L.D.S.I., 11, Whiteladies Road, Clifton.  
 Coates, William Herbert, —L.D.S. Eng., 7, Whiteladies Road.  
 Constance, William James, 12, Stapleton Road.  
*Dallimore, Walter*, 73, City Road.  
 Derrick, Edwin Thomas, 93, Whiteladies Road, Clifton.  
*Duncalf, W. J.*, —L.D.S. Eng., College Green.  
 Fletcher, John, Lime Tree House, St. James Barton.  
 Freestone, Robert Henry, 50, Stokes Croft.  
*Genge, Tom Taylor*, —L.D.S.I., 21, Whiteladies Road, Clifton.  
 Gibson, Alfred Evens, 22, Park Street.  
 Grant, Donald.  
 Harwood, Charles Edward Thomas, 5, Triangle South, Clifton.  
*Harwood, C. P.*, 5, Triangle, South, Clifton.  
*Hatch, Richard Melancthon*, —L.D.S.I., Claremont House, Clifton.  
*Hatton, Frederick James*, —L.D.S.I., 64, Park Street.  
*Hayman, Charles Augustine*,\* —L.D.S. Eng., M.D. St.A., L.R.C.P. and S.I., Kingston Villa, Richmond Hill, Clifton.  
*Hayman, Frank*, 197, Cheltenham Road.  
*Hayman, Samuel John*, —L.D.S. Eng., Lansdown Villa, Queen's Road, Clifton.  
 Heal, George Richard, 28, Old Market Street.  
*Helyar, William*, —L.D.S.I., 22, College Green.

- Jefferis, George Graham, Fern Villa, Glebe Road, St. George.  
*Jennings, Thomas Hughes*, 237, Hotwell Road.  
*Kelsey, Charles Joshua*, —L.D.S. Glas., Carlisle House, Knowle Road.  
 Lewis, Edwin Henry, —L.D.S. Eng., 5, Cheltenham Crescent, Cheltenham Road.  
 Lennox, William John, —L.D.S. Eng., 166, Cheltenham Road.  
 Long, John Temlett, 97, Chesterfield Road, Montpelier.  
*Moore, De la Hey*,† —L.D.S. Eng., 6, West Mall, Clifton.  
 Nosworthy, Joseph C., Wellesley House, Ashley Road.  
 Pearce, Arnold Charles.  
 Pearce, Henry Lardner, 2, Moreton Villas, Stapleton Road.  
 Pearce, William.  
 Pearce, William John Sherborne.  
 Perkins, Jacob Henry, —L.D.S.I., L.D.S. Glas., 14, Victoria Square, Clifton.  
 Perry, Frederick William, —L.D.S. Eng., 23, St. Paul's Road, Clifton.  
 Perry, William Frederick, 23, St. Paul's Road, Clifton.  
 Plumley, James George, Bridge Parade, Bristol Bridge.  
*Ritchie, Thomas Prettie*, —L.D.S. Edin., 63, Redcliff Parade, West.  
 Smart, Edward Frederic, 85, Redland Road.  
 Smith, Alfred, —L.D.S.I., 6, Whiteladies Road.  
 Smith, Alfred Lambert, 37, Milk Street.  
 Smith, Percy Lambert, —L.D.S. Eng., 1, Pembroke Road, Clifton.  
 Sprackett, William Robert Haycroft, Broad Quay.  
 Taylor, Frederick, 2, Dolphin Street.  
 Turner, George Thomas, 1, Whiteladies Gate.  
 Turner, William Henry, 49, Maple Road, Horfield.  
 Washbourne, Edward Norman, —L.D.S. Eng., 59, West Street.  
 Weaver, Frank, 71, Whiteladies Road.  
 Willcox, Robert, —L.D.S. Glas., Craigside, Whiteladies Road.  
 Willows, Charles Edward, —L.D.S.I., Tortworth House, Queen's Road.  
 Wyatt, Herbert John, —L.D.S. Eng., 2, Chesterfield Place, Clifton.  
 Young, Graham, —L.D.S.I., 37, Park Street.

## BROADSTAIRS. Pop. 6,460.

- Bradbury, Richard, 10, Chandos Road.  
 Hale, Albert Henry, 3, York Street.  
*Reed, Charles Scholefield*, —L.D.S. Eng., Calpe House, High Street.

## BROMBOROUGH. Pop. 1,891.

- McMillan, W.*,† —L.D.S. Eng., Sunnyside.

## BROMLEY (MIDDLESEX). Pop. 21,685.

- Corin, F. E.*, —L.D.S. Eng.  
*Henly, A. W.*,\* —L.D.S. Eng., L.R.C.P., M.R.C.S., Gwyder House, High Street.

BROMLEY (KENT). Pop. 27,358.

Barton, William Henry, 30, East Street.  
 Browne, Herbert, —L.D.S.I., York House, High Street.  
 Corin, Frederick Ernest, —L.D.S. Eng., 152, High Street.  
 Edey, George, Westnor.  
*Edey, George Russell*, —L.D.S. Eng., Westnor, High Street.  
 Grisbrook, Stephen, 12, The Promenade.  
*Henley, Albert William*,\* — L.D.S. Eng., M.R.C.S., L.R.C.P.,  
 Gwydyr House.  
 Judd, William, 12, Bromley Common.  
 Newland, Herbert George, —L.D.S. Eng., Layston, Widmore Road.  
 Parker, A. T., —L.D.S. Eng., Langston, Widmore Road.  
 Shillcock, George.

BROMSGROVE. Pop. 13,006.

*Hodson, Clarence Adolphus*, —L.D.S. Glas., 15, High Street.  
 Sykes, Joseph Spencer, Carlyle Road, Aston Fields.

BROMYARD. Pop. 1,663.

Jones, Charles, Market Square.

BUCKIE. Pop. 6,541.

Webster, John, 11, Cluny Square.

BUDLEIGH SALTERTON. Pop. 1,883.

Sanders, William Fletcher.

BUILTH. Pop. 1 805.

Sellis, William John, New Hall, West End.

BUNGAY. Pop. 1,698.

Screaton, John Joseph, Market Place.

BURNHAM-ON-CROUCH. Pop. 2,918.

Ettles, John.

BURNLEY (LANCS). Pop. 113,000.

Fletcher, Samuel, 33, Parker Lane.  
 Heap, Herbert, 6, Colne Road.  
 Holden, Thomas, 2, St. James's Row.  
 Jackson, James, 2, Bridge End.  
 Jackson, Thomas, || 2, Bridge End, St. James's Street.  
*Jackson, Thomas, Jun.*, —L.D.S. Edin., 2, Bridge End, St. James's  
 Street.  
 Masters, Edwin Clarence Platt, —L.D.S. Eng., Church Street.  
 Moorhouse, Joseph Porritt, 58, Westgate.  
 Pearson, West, —L.D.S. Glas., 47, Todmorden Road.  
 Whitehurst, Albert, 15, Hargreaves Street.

## BURSLEM. Pop. 38,766.

Shields, Ernest Thompson, —L.D.S. Eng., 58, Newcastle Street.

## BURTON-ON-TRENT. Pop. 50,488.

Patten, James Hinde, 113, High Street, Newhall.

*Pearson, William Percy*, —L.D.S. Eng., 26, Bridge Street.

Reading, George Frederick, —L.D.S. Eng., Bretby.

Sadler, Bernard Frederick, —L.D.S. Eng., Modwena House, Market Place.

Street, John Westrope, Princess Street.

## BURY (LANCS). Pop. 58,356.

Gaskell, Alexander, 80, Bell Lane.

Haworth, John, 104, Montpelier Place, Rochdale Road.

*Holt, George*, —L.D.S.I., 43, Walmersley Road.

Hopkinson, Harry, —L.D.S. Eng., 27, Stanley Street.

Hopkinson, Seth. M., —L.D.S. Eng., 27, Stanley Street, House  
Surgeon Victoria Dental Hospital, Manchester.

Pickup, James, —L.D.S.I., 124, Studley Terrace, Walmersley Road.

Ratcliffe, George, —L.D.S.I., 12, Tithebarn Street.

*Theakston, Joseph*, || —L.D.S. Eng., 2, St. Mary's Place.

## BURY ST. EDMUNDS. Pop. 16,630.

*Bascombe, Reginald Edward*,\* —L.D.S. Eng., Alvington House,  
Northgate Street.

*Crassweller, Charles Walton*, —L.D.S. Eng., 3, Hatter Street.

Kirkham, Thomas, 35, Butter Market.

*Tracy, Humphrey Wingfield*,\* —L.D.S. Edin., Chantrey House.

## BUXTON. Pop. 7,420.

*Lees, James Adam*, || —L.D.S. Eng., Clifton Lodge, Hardwick Street.

*Sutton, John Edward*, || —L.D.S.I., 15, Spring Gardens.

## CAMPBELLTOWN. Pop. 10,300.

De Winton-Stewart, Charles, Reform Square.

## CAMBERLEY. Pop. 5,240.

Claypole, Alfred Hughes.

## CAMBORNE. Pop. 14,726.

Fiddick, Thomas, —L.D.S.I., Beacon House, The Cross.

## CAMBRIDGE. Pop. 36,983.

Archer, John.

*Bartlett, A. C.*, —L.D.S. Eng., Geneva House, Regent Street.

*Betts, George Owen*,\* —L.D.S. Eng., 1, St. Mary's Passage.

*Black, O.*, L.D.S. —Eng., 28, St. Andrew's Street.  
*Campkin, Algernon Sidney*, 11, Rose Crescent.  
*Cole, Charles Campion*, 48B, Eaden Street.  
*Cunningham, Geo.*, —L.D.S. Eng., D.M.D. Harv., M.A. Cantab.,  
 2, King's Parade.  
*Fawcett, William*, —L.D.S.I., 67, St. Andrew's Street.  
*Flanders, Henry*, 104, Mill Road.  
*Jones, Alfred*, Trumpington House, Linton Road.  
*Jones, Alfred J.*, —L.D.S.I., 57, Trumpington Street.  
*Lowe, Arthur Frank*, 175, Chesterton Road.  
*Moore, Edward*, 30, New Square.  
*Rhodes, Edmund*, —L.D.S. Eng., 3, Silver Street.  
*Rhodes, Percy*, —L.D.S. Edin., 3, Silver Street.  
*Rhodes, William Atkinson,\** —L.D.S.I., 3, Silver Street.  
*Rumsey, C.*, —L.D.S. Eng., Geneva House, Regent Street.  
*Yeomans, John*, Ashby House, Clarendon Road.

CANTERBURY. Pop. 23,026.

*Bell, Martin Luther*, —L.D.S. Eng., St. Margaret Street.  
*Faro, Richard Sydney Newman*, —L.D.S. Eng., 30, St. George's  
 Place.  
*Harris, Francis Richard*, 14, St. Mary's Street.  
*Husbands, John Edwin*, —L.D.S. Edin., Vale House, St. Peter's  
 Street.  
*Pringuer, Halbett Frederick*, 24, King's Bridge.  
*Westron, Henry*, —L.D.S. Eng., 23, St. George's Place.

CARDIGAN. Pop. 3,500.

*Rees, Joseph*, 42, High Street.

CARDIFF (S. WALES). Pop. 185,826.

*Baudry-Mills, Alfred Felix*, —L.D.S. Eng., 20, The Parade.  
*Doherty, John*, 139, Cowbridge Road.  
*Ellis, Charles Edward*, 10, Queen Street.  
*Gray, William*, —L.D.S. Edin., 5, Dumfries Place.  
*Jenkins, Thomas Morgan*, Cathays Pharmacy, Salisbury Square.  
*John, William*, 2B, Carlisle Street.  
*Jones, William James*.  
*Keall, Francis*, 126, Arabella Street, Roath Park.  
*Kittow, William*, —L.D.S. Eng., 8, Newport Road.  
*Martin, Henry Havelock*, —L.D.S. Edin.  
*Morgan, Charles*, 56, Queen Street.  
*Munday, John*, 1, High Street.  
*Nicholson, W.*, —L.R.C.P., M.R.C.S., L.D.S. Eng., 123, Queen Street.  
*Oliver, John Cardell*, —L.D.S. Eng., 121, Queen Street.  
*Peaty, Charles Frederick*, —L.D.S.I., 57, Newport Road.  
*Poole, George*, 35, Westbourne Place.



*Quinlan, Thomas*, —L.D.S.I., 65, Cowbridge Road.  
*Riches, Carlton Hugh*, 24, Dumfries Place.  
*Spray, George Goldfinch*, —L.D.S. Eng., 2, Cathedral Road.  
*Spiridon-Kliszcwski, C. G.*, —L.D.S. Eng., 7, Windsor Place.  
*Strongway, H. S.*  
*Willows, Joseph Thompson*, —L.D.S.I., 2, Dumfries Place.

## CARLISLE. Pop. 45,480.

*Ferguson, John Fitchet*, —L.D.S.I., 3, Henry Street, Warwick Road.  
*Hele, J. W.*, —L.D.S., Portland Square.  
<sup>a</sup>*Hele, Warwick*,\*§ —L.D.S. Eng., 11, Portland Square.  
*Jennings, Thomas*, 50, Broad Street, Warwick Road.  
*Jones, Frederic*, —L.D.S. Edin., 6, Brunswick Street.  
*Kekwick, John*,§ —L.D.S., M.R.C.S. Eng., L.R.C.P. Lond., 8, The Crescent.  
*Mason, William John*, —L.D.S. Edin., 16, Bolton Place, Warwick Road.  
<sup>a</sup>*Morton, Thomas Watson* § —L.D.S. Edin., 10, Bolton Place, Warwick Road.  
*Park, William Hodgson*, —L.D.S. Eng., 8, Victoria Place.  
*Taylor, W.*, —L.D.S., 56, Warwick Road.

## CARMARTHEN. Pop. 10,335.

*Beckett, John Holden*, —L.D.S. Eng., 19, King Street.  
*James, Edward*, 33, Blue Street.  
*Macphail, John*, 19, King Street.  
*Morgan, Edwin*, —L.D.S. Eng., 6, Spilman Street.

## CARNARVON. Pop. 9,760.

*Billing, Fred*, —L.D.S. Eng., 2, St. David's Road.  
*Capon, Thomas*, 16, North Road.  
*Jones, Robert*, 3, Turf Square.  
*Jones, R. Ranleigh*, —L.D.S. Edin., 'Gwyndy,' North Road.  
*Tasker Robert Branton*, Marino.  
*Turner, Robert Breen*, —L.D.S.I., 35, Castle Square.

## CARRICKMACROSS. Pop. 2,000.

*Strachan, Thomas Craig*, Medical Hall.

## CASTLE DOUGLAS (N.B.). Pop. 3,039.

*Veitch, Andrew*.

## CASTLE EDEN. Pop. 1,354.

*Marr, James*, Hutton Lodge, Hutton Henry.

## CASTLE NORTHWICH.

*Lee, W.*, —L.D.S.I., 1, Chester Road.

## CATERHAM. Pop. 9,159.

*Fletcher, John Bowman*, —L.D.S. Eng., Upwood Lane.

CATHCART. Pop. 28,358.

*MacIlraith, W. McLaren*, —L.D.S. Eng., Brownlie Place.

CERNE ABBAS (DORSET). Pop. 650.

Derriman, William Euart Alexander, —L.D.S. Eng.

CHATHAM. Pop. 40,735.

*Cole, A. B.*,† —L.D.S. Eng., Dudley House, Railway Street.

Townley, Ernest Ethelbert, —L.D.S.I., Dudley House, Railway Street.

Ward, Frank, —L.D.S. Eng., Dudley House.

CHELMSFORD. Pop. 12,580.

Baker, Garrard, 58, High Street.

Metcalfe, Frank Webster Spence, —L.D.S. Eng., 42, Duke Street.

Metcalfe, Wilson, 42, Duke Street.

Shoobridge, George Frederick, 8, London Road.

Smith, Nathan.

Street, Irwin Bridle, —L.D.S.I., 22, Duke Street.

Tomlinson, James, 2, Tindal Square.

CHELTENHAM. Pop. 42,920.

Alcock, Charles Edwin William, 3, Southampton Place, London Road.

Allen, Frank Gordon, —L.D.S. Edin., Beechwood House, Montpellier.

Boulton, Thomas Dutson, Hollinwood, Montpellier Terrace.

Brewster, Robert, 17, Maile Hill Road.

Burrows, William Walter, Marlborough House, Pitville Gates.

*Bushnell, James Fred*, Thornbury House, London Road.

*Carden, Alfred Eastland*, —L.D.S. Eng., 7, Rodney Place.

Cull, Edwin, Woodland Villa, Cambray.

Evans, Sidney James, —L.D.S. Eng., Clarence House, Promenade.

*Fernald, Horatio Pillsbury*,\* —L.D.S.I., Clarence House, Promenade.

*Hands, Francis William*, —L.D.S. Eng., 3, Imperial Square.

Hill, Arthur, 98, High Street.

*Huddart, F. E. P.*, —L.D.S. Eng., 3, Imperial Square.

Mallory, George K., —L.D.S. Eng., 2, Alstone Villas.

Marshall, Daws, 30, Winchcomb Street.

Marshall, Daws Rowe, 5, Oriel Terrace.

*Peake, George Arthur*,\* —L.D.S. Eng., M.R.C.S., L.R.C.P., L.S.A.,

Alma House, Rodney Place.

Perry, Robert Henry, 4, Eton Villas, Queen's Road.

Retallack, William Charles, —L.D.S. Eng., Beechwood House, Montpellier.

Robertson, James Lewis, —L.D.S. Eng., 13, Royal Crescent.

*Rogers, Richard*,\* —L.D.S.I., Alma House.

Smith, E. Gethen, —L.D.S. Eng., 13, Royal Crescent.

Turner, Edward Ernest, —L.D.S. Eng., Southend House, Pittville.

Wilkins, Henry, 35 Clarence Square

## CHERTSEY. Pop. 12,762.

Reid, Percy John, —L.D.S. Eng., 132, Guildford Street.

## CHESTER. Pop. 36,281.

*Bonnalie, Frederick John*, ‡ —L.D.S. Edin., 7, Abbey Square.

Bonnalie, George, —L.D.S. Edin., 7, Abbey Square.

*Bonnalie, George Samuel*, ‡ —L.D.S. Edin., 4, Abbey Square.

Bonnalie, Henry Edward, —L.D.S. Edin., 5, Abbey Square.

Bromley, Charles Edward, —L.D.S. Eng. and Glas., Whitefriars House.

Cumming, James, jun., —L.D.S. Glas., 39, City Road.

Dickins, C. F., —L.D.S., 7, Abbey Square.

Dodds, Arthur Wavell, —L.D.S. Eng., 19, Newgate Street.

Harding, Walter Paxton, —L.D.S.I., Bank House, Whitefriars.

*Hill, R.*, —L.D.S. Edin., 7, Abbey Square.

Johnson, Michael, || —L.D.S.I., Whitefriars House.

McDonald, Archibald, 46, Watergate Street.

McMillen, W. H., —L.D.S., 7, Abbey Square.

*Millington, Henry Teece*, 4, Whitefriars.

Millington, Mary Teece, 4, Whitefriars.

*Segar, Frank*, —L.D.S. Eng., Whitefriars House.

Stevens, John Charles, —L.D.S. Eng., Abbey Square.

Thomas, Alfred Henry, —L.D.S. Edin., 18, Pepper Street.

## CHESTERFIELD. Pop. 13,240.

Cutts, Joseph Nix, Pilsley.

Elliott, Thomas, Newbold Moor.

Furness, Thomas, —L.D.S. Glas., 30, Knivesmith Gate.

Slack, John Walter, Park Villa, Salter Gate.

Slack, William Henry, 23, Cobden Road.

*Smith, Frederick*, 28, Burlington Street.

Smith, Harold, ¶ —L.D.S. Eng., 28, Burlington Street.

## CHESTER-LE-STREET (DURHAM). Pop. 11,753.

Morrell, Richard James, —L.D.S. Eng., Norton House, Front Street.

## CHEW MAGNA. Pop. 1,500.

Milton, William Edwin.

## CHICHESTER. Pop. 7,840.

Baker, Samuel, Eastgate.

Curtis, Charles John, North Pallant.

Curtis, Lionel, —L.D.S. Eng., 16, North Pallant.

Ellidge, John, 89, East Street.

Evans, Price James, —L.D.S.I., Richmond House, South Street.

Fleetwood, Leonard M., —L.D.S. Eng., Richmond House, South Street.

Harrington, Reginald George, —L.D.S. Eng., 68, North Street.

Huskinson, John Loveitt, 11, South Street.

*Keay, Colin*, —L.D.S. Eng., 23, North Street.

CHIPPENHAM. Pop. 5,070.

*Pickering, Harold John*, —L.D.S. Eng., 52, High Street.

CHISWICK. Pop. 29,809.

Fillingham, William Cutler, 7, William's Terrace.

Shattock, Charles Robert, —L.D.S. Eng., Lyndholme, Arlington Park Gardens South.

Tarry, Charles Robert James, —L.D.S. Eng., Marlow Lodge, Oxford Road.

CHORLEY (LANCS). Pop. 26,850.

Bromley, Thomas William, —L.D.S. Eng., 40, Chapel Street.

CIRENCESTER. Pop. 7,535.

*Hawkins, Frederick William*, Charlton House, Gloucester Street.

CLACTON-ON-SEA. Pop. 7,455.

*Wheeler, Sydney*, —L.D.S. Eng., Crossby House, Station Road.

CLAYCROSS. Pop. 8,340.

Daykin, Kendel, High Street.

CLECKHEATON (YORKS). Pop. 12,523.

Mallinson, Herbert, —L.D.S. Glas., 4, Victoria Avenue.

Potts, George, 1, Westgate.

CLEVEDON. Pop. 5,898.

Hayman, Howard Little, —L.D.S. Eng., Belle Vue.

CLITHEROE (YORKS). Pop. 11,414.

Bulcock, Frederick, Stanworth House, York Street.

*Bulcock, Joseph Henderson*, Hazelmere, Pimlico Road.

Forrest, Thomas, 15, York Street.

CLONMEL. Pop. 8,000.

Mosbery, Richard, 5, Anglesea Street.

COALVILLE. Pop. 15,280.

Porter, John Thomas.

COATBRIDGE, N.B. Pop. 29,995.

*Henderson, John Meldrum*, —L.D.S. Glas., 111, Coatbank Street.

*Stewart, James*, —L.D.S. Glas., 20, Academy Street.

COBHAM (SURREY). Pop. 3,902.

Redfern, John.

COLCHESTER. Pop. 38,351.

Ayres, Arthur William Percy, —L.D.S. Eng., 2, Crouch Street.

*Dixon, Edward Austin*, 27, Head Street.

Frost, Abraham William, —L.D.S. Eng., 13, Head Street.

Frost, George Edward, —L.D.S. Eng., Tilney House.

Margetson, James Francis, 119, Crouch Street.  
Randall, Charles William, —L.D.S. Eng., Dental Surgeon to the Army.  
Worts, Dale Grahaam, —L.D.S. Glas., 6, Trinity Square.

## COLERAINE.

Watson, Henry Cooke, —L.D.S. Edin., Harbour View.

## COLNE (LANCS). Pop. 4,300.

Anderson, Thomas, 77, Albert Road.  
Sidebottom, John Wilson, —L.D.S. Eng., 21, Albert Road.

## COLWYN BAY. Pop. 8,683.

Buckley, Thomas, —L.D.S.I., Appleton, Conway Road.  
*Hall, Thomas Sheridan Muspratt,\** —L.D.S.I., Merlewood, Conway Road.  
Harding, Charles H., —L.D.S. Eng., Mount Pleasant, Abergele Road.  
*Homer, Samuel*, —L.D.S. Edin., Merridale, Conway Road.  
Robertson, George Meyler, The Laurels, Woodland Road.  
*Sarson, Arthur Alford*, —L.D.S.I., 1, Hawarden Road.  
Wayte, Walter A., —L.D.S. Eng., 4, Hawarden Road.

## CONGLETON. Pop. 10,706.

Broad, George, 2, Duke Street.

## CORK. Pop. 75,075.

Acheson, Herbert Charles, 60, South Mall.  
*Butterfield, Thomas C.*, 68, South Mall.  
*Corbett, William Cochrane*, 3, South Mall.  
*De Foubert, C.*, —L.D.S.I., 7, Egerton Villas, Military Road.  
*Egan, Louis John*, —L.D.S.I., 7, South Mall.  
*Gates, W.*, The Cottage, Kildorrery.  
*O'Keefe, Hubert*, —L.D.S.I., 57, South Mall.  
*Ollivere, Joseph Francis*, 10, Cook Street.  
*Pericho, W. V.*, —L.D.S.I., 10, Morrison's Island.  
*Swales, S. W. N.*, —L.D.S. Edin., 25, Grand Parade.

## CORWEN. Pop. 1,765.

Storrie, John Black, The Cottage.

## COSHAM. Pop. 2,859.

Baker, Thomas Brown.  
*Baker, William Herbert*, —L.D.S. Eng., The Lawn, Waterlooville.  
Gurnell, William, Waterlooville.

## COVENTRY. Pop. 68,877.

Axford, John William, 60, Smithford Street.  
Bird, Frederick, 156, Spon Street.  
Glover, Henry, 68, Spon Street.  
Hinds, Frederick James, 6, Warwick Row.

Hinds, J., 21, Warwick Road.

Jepson, Alfred Betham, —L.D.S. Eng., 8, Queen's Road.

Makepeace, Alfred Joseph,\* —L.D.S. Eng., Hertford Chambers,  
Hertford Street.

Newton, Alfred Henry, 28, Earl Street.

*Vickery, Alfred Edward*, —L.D.S.I., 10, Warwick Row.

Williamson, Thomas Umbers, 76, King William Street.

CRADLEY HEATH. Pop. 6,733.

Wooldridge, Elijah.

CRAMLINGTON. Pop. 6,437.

Bonallo, William, Cramlington Hall.

CRANBROOK. Pop. 2,962.

Turner, John, Stone Street.

CRAWLEY. Pop. 3,824.

Leach, John, The Flushings.

CREDITON. Pop. 3,974.

Jackson, William, 10, High Street.

CREWE. Pop. 42,075.

Belling, Francis Henry, Grosvenor Buildings.

*Booth, Richard Baxter*, || —L.D.S. Eng., 9, Market Square.

Jones, John, —L.D.S. Edin., 1, Beech Street, Hightown.

Ormrod, Oliver, 27, Chetwode Street.

Place, Thomas Byron, —L.D.S.I., Grosvenor Buildings.

CREWKERNE. Pop. 4,226.

Stringfellow, Frederic John.

CRIEFF. Pop. 5,208.

*Crichton, George*, —L.D.S. Edin., 31, High Street.

Crichton, John Pringle, —L.D.S. Edin., 31, High Street.

CROMER. Pop. 3,775.

*Walker, Arthur West*, —L.D.S., M.R.C.S. Eng., L.R.C.P. Lond., 3,  
Vicarage Road.

CROOK. Pop. 11,472.

Ditchburn, Peter, South Street.

CROYDON. Pop. 133,885.

Baldock, John Henry, Overdale, St. Leonard's Road.

Beaumont, Arthur Reginald, —L.D.S. Eng., 32, Addiscombe Road.

Bennett, John, —L.D.S. Eng., 9, Mason's Avenue.

*Bienemann, E. C.*, —L.D.S. Glas., D.M.D. Harv., 94, Park Lane.

Bullard, George Alfred, 98, High Street.

Burnett, William, 109, London Road.



Clarke, Josiah, 38, George Street.  
*Couchman, Ernest*,\* —L.D.S. Eng., 64, Croham Road.  
 Culver, John, 86, North End. [combe Road.  
 Cutts, Henry Whitmore, —L.D.S. Eng., Brickwood Lodge, 5, Addis-  
*Fenn, William George*, 2, George Street.  
 Field, Edgar Albert Hector, —L.D.S. Eng., 64, Oakfield Road.  
 Gillemand, E. J. F., —L.D.S. Eng., 75, Wellesley Road.  
*Glassington, John Henry*, —L.D.S. Eng., 26, Wellesley Road.  
*Holman, A. E.*, —L.D.S. Eng., 34, Oakfield Road.  
 Hose, Valentin, 71, Southbridge Road, South Croydon.  
*Hughes, Morgan*,\* —L.D.S., M.R.C.S. Eng., Eastbridge, Addis-  
 combe Road.  
 Long, Henry, 132, High Street.  
*Macfarlane, J. S.*, 30, Wellesley Road.  
 Midgley, William.  
 Peacock, Henry Maurice, —L.D.S. Eng., 289, London Road.  
 Peacock, William Baly, —L.D.S. Eng., 289, London Road, West  
 Croydon.  
 Reeve, Harry George Cleave, —L.D.S. Eng., Lansdowne Gardens.  
*Rymer, Samuel Lee*,\* —L.D.S. Eng., 14, Wellesley Road (retired).  
 Smith, Sydney Joseph, —L.D.S. Edin., 98, South End.  
 Steele, Joseph, —L.D.S. Eng., Wellesley Road.  
*Williams, Bertram Alexander*, —L.D.S.I., 3, Wellesley Road.  
 Witcomb, Charles Frederick,\* —L.D.S. Eng., 26, Wellesley Road.

## CULLOMPTON. Pop. 2,922.

Pitt, Charles Fox, —L.D.S. Eng., Oburnford.

## CUPAR. Pop. 4,517.

Duncan, William, 64, Crossgate.  
 Robertson, John Alexander, 34, Bonnygate.

## DARLINGTON. Pop. 44,496.

Andrews, George Percival, 5, Coniscliffe Road.  
 Best, George, Bondgate.  
 Brebner, Ronald Gilchrist, —L.D.S. Edin., 11, Greenbank Crescent.  
*Cowper, Ben Farrar*, —L.D.S.I., 6, Victoria Road.  
*Fothergill, John Alexander*,\*§ —L.D.S., M.R.C.S. Eng., Raydale-  
 side, South Stanhope Road.  
 Hamilton, F. P., —L.D.S. Eng., Raydaleside, Stanhope Road.  
 Thompson, H. W., —L.D.S., Woodlands Road.  
*Tibbits, Harry William Orton*, —L.D.S.I., 27, Grange Road.

## DARTFORD. Pop. 11,960.

*Wilkinson, Thomas Henry*, —L.D.S. Eng., 4, West Hill.

## DARTMOUTH. Pop. 6,579.

*Goodridge, Alan*, 5, Carlton Terrace.  
 Humphry, Horatio, 2, Fairfax Place.

DARWEN (LANCS). Pop. 38,211.

*Bromley, Frederick William* —L.D.S. Eng., 34, Railway Road.  
*Bromley, James*, 34, Railway Road.  
*Hodgkinson, Henry*, 129, Duckworth Street.  
*Shorrock, John Isherwood*, —L.D.S. Eng., 44, Railway Road.  
*Shorrock, Ralph*, 6, Market Street.

DAWLISH. Pop. 4,003.

*Cutcliffe, George John*, 7, Strand.  
*Hinton, Frederick William*, —L.D.S.I., 1, Riviera Terrace.

DEAL. Pop. 10,570.

*Lane, Everard Foster*, —L.D.S. Eng., 25, Victoria Road.  
*Lane, Keith Foster*, —L.D.S. Eng., 28, Victoria Road.  
*Timms, Walter Thomas Day*, —L.D.S. Eng., Lincoln House, 34, Victoria Road.

DENBIGH. Pop. 6,439.

*Jones, John Harrison*, Trefeirian.

DERBY. Pop. 105,785.

*Allin, Charles James*, —L.D.S. Eng., 115, Friargate.  
*Bonner, Robert*, Langley, Marlpool.  
*Bryant, Frank*, —L.D.S. Eng., 37, Babington Lane.  
*Clifton, Frederick*, 34, Cornmarket.  
*Cowl, George Edward*, St. Peter's Chambers.  
*Cowl, John Wood*, —L.D.S. Edin., St. Peter's Chambers, St. Peter's Street.  
*Glover, George*, —L.D.S.I., 189, Osmaston Road.  
*Goodwin, George Henry*, Mill Hill House.  
*Gray, Cecil Owen*, —L.D.S. Glas., Oak's Chambers, St. Peter's Street.  
*Hirst, Joseph*, 34, Burton Road.  
*Hyem, Thomas*.  
*Knowles, Joseph William*, 330, Normanton Road.  
*Machon, Edward*, 51, Park Street.  
*Murphy, James Montague*, —L.D.S. Eng., Market Place Buildings.  
*Murphy, Octavius Brabazon*, —L.D.S. Eng., Market Place Buildings.  
*Rowney, Thomas Walter Faraday*, —L.D.S. Eng., Gordon House, St. Peter's Churchyard.  
*Searle, William Radley*, —L.D.S. Eng., Trinity Terrace, London Road.

DEVIZES. Pop. 6,532.

*Keeling, William Edward*, 16, High Street.  
*Musgrave, Joseph John*, 16, High Street.

DEVONPORT. Pop. 69,674.

*Maw, Robert*, 21, St. Aubyn Street.  
*Seymour, Edwin James*, 18, St. Aubyn Street.

## DEWSBURY. Pop. 28,050.

Cope, Alfred, Leeds Road.

Keighley, Joseph, 41, Halifax Road.

*Margetson, William Edward*,\*|| —L.D.S., M.R.C.S. Eng., Roscoe Chambers.

*Mitchell, Arthur*,|| —L.D.S. Eng., 21, Bradford Road.

*Mitchell, Samuel*,|| —L.D.S.I., 21, Bradford Road.

*Mitchell, Thomas*, —L.D.S. Eng., 21, Bradford Road

*Rippon, Charles*,|| —L.D.S.I., West Town.

## DISS. Pop. 3,760.

*Whitrod, Henry Frederic*, 4, Park Villas, Denmark Street.

## DOLGELLY. Pop. 2,437.

Richardson, John Emerson, —L.D.S.I.

Williams, Richard Wynne, Queen Square.

## DONCASTER. Pop. 28,924.

Connor, Thomas Haigh, 39, Market Place.

*Cuttriss, Thomas*, 24, High Street.

*Dawson, Frederick George*, —L.D.S.I., 50, Hall Gate.

Robinson, George Theodore, —L.D.S. Eng., Home Lodge, Hexthorpe.

Walker, Francis Drury, —L.D.S.I., 26, Hall Gate.

*Wallis, Arthur Pearson*, —L.D.S.I., 63, Hall Gate.

## DORCHESTER. Pop. 9,458.

Colmer, Christopher Augustus Robert Alexander, 4, South Terrace.

Prideaux, Albert E. D.,\* Ermington.

*Prideaux, Charles Sydney*,\* —L.D.S. Eng., Ermington.

*Prideaux, William de Courcy*,\* —L.D.S. Eng., Ermington.

## DORKING. Pop. 7,670.

Clift, Joseph, Steindach.

Green, H. Frederick, —L.D.S. Eng., Butter Hill House.

*Maurice, A.*, —L.D.S. Edin., Butter Hill House.

## DOUGLAS. Pop. 20,000.

Clare, Edwin, Major, —L.D.S.I.

*Clegg, Joseph Edwin*, 10, Finch Road.

Horne, George Henry, 1, Mount Pleasant, Finch Road.

James, John Fry, 2, West View.

*James, John Joseph*, —L.D.S. Eng., 2, West View.

Kissack, Edward Thomas, —L.D.S. Edin., Ballabrooie.

Mackenzie, Alexander Ballantyne, —L.D.S. Eng., 16, Finch Road.

Royston, Joseph, —L.D.S. Eng., F.P.S. Glas., The Hermitage.

Young, John, Market Place.

DOVER. Pop. 41,782.

Amoore, Charles Robert, —L.D.S.I., 1, Maison Dieu Road.  
 Dunsford, Frederick William, 26, Castle Street.  
 Robertson, John Henry, —L.D.S. Eng., 1, Castle Street.  
 Saul, William Albert Hodgins, —L.D.S. Eng., 4, Castle Street  
 Saul, William Henry, —L.D.S. Eng., 2, Eric Road.  
*Smith, Victor George*, —L.D.S. Eng., 1, Castle Street.

DROYLSDEN. Pop. 11,087.

Battersby, J., —L.D.S. Eng., 90, Market Street.

DUBLIN. Pop. 349,600.

*Baker, Arthur Wyndowe Willert*,\* —L.D.S.I., M.B., M.S.,  
 59, Merrion Square.  
 Bermingham, Patrick Joseph, 54, Harcourt Street.  
 Bibby, Samuel Ogden, 31, Lower Sackville Street.  
*Bishop, Shenstone John*, —L.D.S.I., 20, Merrion Square.  
 Black, Bertram Douglas, —L.D.S.I., 11, Clare Street.  
*Black, Gerard*, —L.D.S.I., 11, Clare Street.  
 Blakeley, John J., 4, Harrington Street.  
 Bloom, Marcus Joseph,\* —L.D.S.I., 2, Clare Street.  
 Bradlaw, Henry Jacob, 4, Harrington Street.  
 Carey, John, 59, Heytesbury Street.  
 Carter, Aloysius Herbert, —L.D.S.I., 194, Great Brunswick Street.  
 Clifford, Herbert Hyeman, —L.D.S. Eng., 11, Merrion Square.  
*Cockburn, Joseph*, —L.D.S. Eng., 33, Lower Baggot Street.  
*Costello, Francis Xavier*, —L.R.C.S., L.R.C.P., L.M., L.D.S.I.,  
 27, Morehampton Road, Donnybrook.  
 Curran, Francis Adye, —L.D.S. Edin., 42, Upper Rathmines.  
*Davies, Frederick Edward*, —L.D.S.I., 7, Clare Street.  
 Davis, Adolphe, 10, Lower Sackville Street.  
 Dowling, Charles Hutton, 1, Merrion Square North.  
*Doyle, Vincent*, —L.D.S.I., 27, Lower Baggot Street.  
 Drinan, Andrew, —L.D.S. Eng., 10, Clare Street.  
 Ellenbogen, Louis, —L.D.S.I., 34, Longwood Avenue, S.C.R.  
 Flanagan, Thomas, —L.D.S. Eng., 76, Dalymount, North Circular Rd.  
*Gillies, J. B.*, —L.D.S. Eng., 12, Belfast Terrace, North Circular Rd.  
 Goepel, Thomas George, 51, Grafton Street.  
 Goldie, George J., —L.D.S.I., 95, Merrion Square.  
*Goldie, George James*,\*† —L.D.S., L.R.C.P., L.R.C.S. Edin.,  
 95, Merrion Square.  
 Hall, William Frederick, 1, Clare Street.  
*Harrison, Alfred Lloyd*, —L.D.S.I., 2, Upper Camden Street.  
*Hayes, Henry Earith*, —L.D.S.I., 4, Merrion Street.  
 Leventon, Julius, —L.D.S.I., 11, Harrington Street.  
 MacDonnell, Randall, 36, Henry Street.  
*Moore, George Peirce*, —L.D.S. Eng., M.B., 29, Upper Merrion Street.  
 Moore, Robert H., —F.R.C.S.I., 29, Upper Merrion Street.

- Murphy, John Jos., —L.D.S.I., 5, Rutland Square, E.  
 Murray, George Mark Patrick, —L. and F.R.C.S.I., 10, Hume Street.  
 Murton, Robert, 49, Bath Avenue, Sandymount.  
 Nicholson, Percy, —L.D.S.I., 18, Westmoreland Street.  
 O'Duffy, John, —L.D.S.I., 54, Rutland Square.  
 O'Duffy, Kevin Emmet,\*† —L.D.S. Edin., 85, Harcourt Street.  
 Ogilvy, William, —L.D.S.I., 26, Rathgar Road.  
 Pakenham, Francis Henry Godfrey, —L.D.S.I., 8, Clare Street.  
 Pasley, Edward Thomas, —L.D.S.I., 38, Rathmines Road. [Street.  
 Pearsall, William Booth, —L. and F.R.C.S.I., 13, Upper Merrion  
 Pellissier, Edward Charles, —L.D.S.I., 21, North Frederick Street.  
 Phillipson, Herbert Flavelli, —L.D.S.I., 10, Lower Bagot Street.  
 Potter, John Isidore, —L.D.S.I., 113, Lower Bagot Street.  
 Quinn, W. G. George, —L.D.S.I., 61, Brighton Road, Rathgar.  
 Rae, Thomas Albert, —L.D.S.I., 24, Westland Row.  
 Reeves, Samuel George, —L.D.S.I., 15, Rathmines Road.  
 Rogers, Daniel Leveck, —L.D.S.I., 29, Lower Fitzwilliam Street.  
 Schlegel, Henry, —L.D.S.I., 7, Harrington Street.  
 Sheppard, George,\* —L.D.S. Eng., 59, Merrion Square.  
 Sheridan, Edward Leo., —L.D.S.I., 10, Westland Row.  
 Sherlock, Henry Gregg, —F.R.C.S.I., 14, Westland Row.  
 Sherlock, Samuel, 181, Great Brunswick Street.  
 Smith, Duncan McCallum, —L.D.S.I., 62, Lower Mount Street,  
 Merrion Square.  
 Smith, James, —L.D.S.I., 62, Lower Mount Street. [land Row.  
 Stack, Richard Theodore, —L.D.S. Eng., M.D., F.R.C.S.I., 10, West-  
 Stanton, John, —L.D.S.I., 42, Harcourt Street.  
 Stirling, G. M., —L.D.S.I., 2, Upper Fritz-William Street.  
 Stoker, Francis Owen, —L.D.S.I., 23, Westland Row.  
 Story, William George Theaker, —L.D.S.I., 8, Upper Fitzwilliam Street.  
 Studley, Thomas, —L.D.S.I., 13, Westmoreland Street.  
 Summerling, A. N., —L.D.S. Eng., 3, Leinster Terrace, Kingstown.  
 Taphouse, Henry, 30, Haddington Road.  
 Thacker, Joseph William, —L.D.S.I., 40, Upper Fitzwilliam Street.  
 Thomson, Joseph Smithson, —L.D.S. Edin., 19, Lower Fitzwilliam  
 Street. [Baggot Street.  
 Thomson, Murray Forbes, —L.D.S. Edin. and Glas., 28, Lower  
 Thomson, Robert Peel, —L.D.S. Edin., 199, Great Brunswick Street.  
 Tucker, James, 44, Harcourt Street.  
 Wall, Charles, —L.D.S.I., 208, Great Brunswick Street.  
 Weinstock, Samuel, —L.D.S. Edin., 76, Harcourt Street.  
 Winder, Harry, —L.D.S. Eng., 10, Westland Row.  
 Yeates, George Wyclif, —L.D.S.I., 25, Lower Bagot Street.

## DUDLEY. Pop. 45,700.

- Angus, John, 212, High Street.  
 Capes, Henry Harling, —L.D.S. Edin., 269, Castle Street.  
 Davies, Samuel, High Street.

Griffith, Harry Dermott, —L.D.S.I., 18, Wolverhampton Street.  
Rowton, Henry, 109, Hall Street.

DUMBARTON. Pop. 15,046.

Campbell, Alexander, —L.D.S. Edin., Commercial Bank House.

DUMFRIES. Pop. 17,079.

*Chrystie, Robert*, —L.D.S. Glas., 2, Church Place.  
*Dykes, Thomas*, —L.D.S. Glas., 11, Church Crescent.  
Dykes, Thomas Campbell, —L.D.S. Edin., Spring Gardens.  
*Goodwin, F. W.*, —L.D.S. Eng., 11, Church Crescent.  
Hughes, John Bulkeley Robert, —L.D.S.I., 7, Academy Street.  
Tocher, John, 84, High Street.  
*Wilkie, James*, 149, High Street.  
*Wood, John Maxwell*, —L.D.S., M.B. Edin., 95, Irish Street.

DUNDALK. Pop. 13,076.

*Biggs, J. C.*, —L.D.S. Glas., Douglas Place.  
Thomson, Daniel, 6, Earl Street.

DUNDEE. Pop. 160,788.

Adamson, Peter Campbell, Seagate House.  
Black, Norman, —L.D.S. Eng., 191, Brook Street, Broughty Ferry,  
near Dundee.  
*Brown, Charles Every*, —L.D.S. Eng., 27, South Tay Street.  
Bruce, James, —L.D.S. Edin., 146, Nethergate.  
*Campbell, Walter*,\* —L.D.S. Eng., 27, South Tay Street.  
*Campbell, W. G.*,\* —L.D.S. Edin., M.B., C.M., D.D.S. Chic.,  
27, South Tay Street.  
Cassaday, John, 43, Murray Gate.  
*Fisher, William Macpherson*, —L.D.S. Eng., 136, Nethergate.  
Gelsthorpe, James.  
Gorrie, Henry James, —L.D.S. Edin., 148, Nethergate.  
*Gorrie, Peter*, —L.D.S. Glas., 148, Nethergate.  
Johnstone, Thomas, 10, Airlie Place.  
*Mechan, Alexander Robb*, —L.D.S.I., 17, South Tay Street.  
*Shepherd, J. D.*, —L.D.S. Edin., 140, Nethergate.  
*Small, David Mann*, —L.D.S. Eng., 10, South Tay Street.  
*Walker, Patrick Spink*, 23, High Street.

DUNFERMLINE. Pop. 25,250.

Kelt, James Alexander, 4, Bridge Street.  
Platt, James Edmund, —L.D.S. Glas., 4, Bridge Street.  
Robertson, Andrew, 18, Douglas Street.  
Wood, Amurath, 109, High Street.

DUNOON. Pop. 6,300.

Edmiston, William, 97, Argyll Street.



## DURHAM. Pop. 14,640.

*Drake, George Herbert*, § —L.D.S. Eng., Old Elvet.

*Picton, E.*, 49, Old Elvet.

Wood, Arthur William Henry, Elvet Bridge.

## DYSART. Pop. 3,500.

Forrester, Andrew, Dysart.

## EASTBOURNE. Pop. 43,340.

Acton, George Harris, —L.D.S. Eng.

*Barton, William*, —L.D.S. Edin., Sadowa House, Cornfield Road.

*Collett, H. E.*, —L.D.S. Eng., 40, Seaside.

*De Mierre, Albert*,\* —L.D.S. Eng., 6, Seaside Road.

*Foran, John Cyril*,\* —L.D.S.I., Elmslea, 7, Seaside Road.

Hayes, George Francis, 45, Terminus Road.

*Myers, Thomas Cyrill*, —L.D.S. Eng., 101, South Street.

Newbery, Ernest Arthur, —L.D.S. Eng., 2, Central Buildings, Seaside Road.

*Turner, Harold Arthur*,\* —L.D.S. Eng., Ely Lodge, Lismore Road.

*Turner, V. E.*, Ely Lodge, Lismore Road.

*Whatford, J. Henry*,\* —L.D.S. Eng., 6, Seaside Road.

*Williams, Walter*, —L.D.S.I., The Wolds, College Road.

## EAST DEREHAM. Pop. 5,545.

Bambridge, James Williams.

## EAST GRINSTEAD. Pop. 6,094.

*Burt, Alfred Thomas*, —L.D.S. Edin., St. Faith, Cantelupe Road.

Dixon, Walter Henry, High Street.

Wood, Charles, 76, Moat Road.

## EAST MOLESEY. Pop. 2,899.

Longtoft, William, Bridge Road.

## ECCLES (LANCS). Pop. 11,145.

*Anderson, George Herbert*, || St. Moritz, Clarendon Road.

Broughton, George, 26, Wellington Road.

Rawsthorne, Felix, —L.D.S. Eng., Glenart, Ellesmere Park.

*Rodway, James Henry*, —L.D.S. Eng., Wellington House, Wellington Road.

## EDINBURGH. Pop. 298,930.

Alexander, William Black, —L.D.S. Edin., 8, Blenheim Place.

*Amoore, John Spencer*,\*† —L.D.S. Eng., 10, Charlotte Square.

*Anderson, Arthur Sherwood*, —L.D.S. Edin.

Baillie, Robert, 95, Shandwick Place.

Blair, Daniel, —L.D.S. Glas., 6, Blenheim Place.

Blanc, Victor Hippolyte, —L.D.S. Edin., 3, Glengyle Terrace.

Brown, John, 61, Lothian Road.

- Brown, C. C.*, —L.D.S. Edin, 45, George Square.  
*Cairncross, John Alexander*, L.D.S. Edin., 36, Raeburn Place.  
*Campbell, Colin McArthur*, L.D.S. Edin., 2, North Charlotte Street.  
*Campbell, David Robertson*,† —L.D.S. Edin., 2, North Charlotte Street.  
*Chapman, Henry Hepburn*,† —L.D.S. Edin., 31, Howe Street.  
*Chisholm, John Keith*,† 34, Dublin Street.  
*Clarkson, James Copland*, 20, Forth Street.  
*Common, John Shafto*, —L.D.S. Edin., 4, Leopold Place.  
*Cooper, James*,† 31, Howe Street.  
*Cormack, Alexander*,† —L.D.S. Eng., 8, George Square.  
*Cormack, David Alexander*, —L.D.S. Edin., 8, George Square.  
*Cormack, John Henry*, —L.D.S. Edin., 8, George Square.  
*Cowell, H. G. H.*, —L.D.S. Edin., 30, Rutland Square.  
*Davie, Thomas William*, —L.D.S. Edin., 5, Brougham Place.  
*Dickson, Robert Anderson*, —L.D.S. Edin., 16, Ainslie Place.  
*Dunn, Louis Anderson*, —L.D.S. Edin., 12, Newington Road.  
*Durward, James Stewart*,\*† —L.D.S. Edin., 16, George Square.  
*Dykes, Edward*, 122, Lauriston Place.  
*Edwards, William*, 61, Queen Street.  
*Fergie, William*, 61, South Clerk Street.  
*Finlayson, Alexander Kay*,† —L.D.S. Edin., 15, Manor Place.  
*Finlayson, William Thomas*, —L.D.S. Edin., L.R.C.P., L.R.C.S., 32, Buccleuch Place.  
*Forrester, William*, 23A, George Square.  
*Gamley, David*, 4, Gladstone Terrace.  
*Gardiner, Thomas*, 12, Forth Street.  
*Gardner, William*, —L.D.S. Edin., 43, Lauriston Place.  
*Gentle, James*, 6, Rankeillor Street.  
*Gibbs, John Herbert*,† —L.D.S. Edin., L.R.C.P., L.R.C.S., 59, Queen Street.  
*Gibson, Adam*, Thistle Street Lane.  
*Gilmour, David*, —L.D.S. Edin., 9, Iverleith Row.  
*Girdwood, John*,† —L.D.S. Edin., 16, Ainslie Place.  
*Gregory, Frederick Stephen*, —L.D.S. Edin., 12, Dundas Street.  
*Gregory, Thomas*, —L.D.S. Edin., 12, Dundas Street.  
*Greig, A. W.*, —L.D.S. Edin., 26, Grindlay Street.  
*Guy, William*, —F.R.C.S., L.R.C.P., L.D.S. Edin., 11, Wemyss Place.  
*Hannah, Robert Nasymth*,† —L.D.S. Edin., 4, Pitt Street.  
*Hardie, Walter Jackson*, —L.D.S. Eng., 252, Morrison Street.  
*Hepburn, David*,\* —L.D.S. Eng., 1, Wardie Road.  
*Hogue, David Wilson*, —L.R.C.S., M.D. Edin., 8, Glencairn Crescent.  
*Irving, William Mill*, —L.D.S. Edin., 13, Ardmillan Terrace.  
*Jamieson, James Dalgleish Hamilton*,† —L.D.S., Edin., 52, George Square.  
*King, Francis Radley*, —L.D.S. Edin., 83, Marchmont Road.  
*Limont, Alexandra Mary*, —L.D.S. Edin., 6, Minto Street.  
*Lindsay, Robert*,† —L.D.S. Edin., 2, Brandon Street.

- Logan, John Douglas*,† L.D.S. Edin., 1, George Square.  
*MacCallum, Alexander Inglis*, 5, Greenhill Park.  
*McGlashan, Duncan*, 174, West Fountain Bridge.  
*McGlashan, James*, 21, West Maitland Street.  
*MacGregor, Malcolm James*, —L.D.S. Edin., 20, Queen Street.  
*Mackay, A. Gladstone*, —L.D.S. Edin., 171, Dalkeith Road.  
*McKechnie, John Douglas*, —L.D.S. Edin., 44, Howe Street.  
*McKenzie, Thomas Cuthill*, —L.D.S. Edin., 53, George Street.  
*Mackintosh, James*, 42, Queen Street.  
*Mackintosh, Richard Cobden*, 11, Dublin Street.  
*Maclean, Archibald Roland*,† —L.D.S. Edin., 6, Coates Place.  
*Macpherson, Andrew*, 1, Rankeillor Street. [Merchiston.  
*Malcolm, John*, —L.D.S. Edin., 19, Angle Park Terrace, North  
*Marr, James*, 32, London Street.  
*Mason, John McLaren*, —L.D.S. Edin., 15, Lauriston Place.  
*Mason, Richard*, —L.D.S. Edin., 15, Lauriston Place.  
*Mathew, Charles*,\*†, —L.D.S. Edin., 15, Ainslie Place.  
*Meeke, William*, —L.D.S. Edin., 20, Queen Street.  
*Melville, Stanley Herbert*, —L.D.S. Edin., c/o Messrs. J. Melville and  
 Sons, 7, Clyde Street.  
*Menmuir, William Henry*, —L.D.S. Edin., 47, Comely Bank Road.  
*Michael, Mostyn*, —L.D.S. Edin., 9, Bernard Terrace.  
*Miller, Adam Ernest*,† —L.D.S. Edin., 2, Clifton Terrace, Hay-  
 market.  
*Monroe, David*,† —L.D.S. Edin., 3, Howe Street.  
*Morgan, William Gerard*,† —L.D.S. Edin., 5, Montpelier Park.  
*Munro, Alexander*, —L.D.S. Edin., 37, Elm Row.  
*Munro, James Graham*,† —L.D.S. Edin., 2, Manor Place.  
*Nash, J. Kirke*, —L.D.S. Edin., 6, Inverleith Row.  
*Nicholson, George*, —L.D.S. Edin., 11, Claremont Terrace.  
*Noble, E. Campbell*, —L.D.S. Edin., 12, Nelson Street.  
*Page, Charles Edward*,† —L.D.S. Edin., 6, Hope Street.  
*Page, Frederick*,† —L.D.S. Edin., 6, Hope Street, Charlotte Square.  
*Park, Alfred Ebenezer*, —L.D.S. Edin., 19, Windsor Street.  
*Phillips, Peter Hume*, —L.D.S. Edin., 5, South-East Circus Place.  
*Pringle, Robert*, 16, Newington Road.  
*Purdie, Hume*,† —L.D.S. Edin., 9, Gilmore Place.  
*Ramage, Harry*, —L.D.S. Edin., The Garden, Ferry Road, W.  
*Robinson, Edwin*, —L.D.S. Edin., 16, Ainslie Place.  
*Russell, John Cairns*, —L.D.S. Edin., 37, Mayfield Gardens.  
*Saunderson, Robert Stewart*, —L.D.S. Edin., 31, Colinton Road.  
*Selkirk, James*, 8, Heriot Place.  
*Shennan, Alexander*, —L.D.S. Edin., 28, Alva Street.  
*Shennan, Lawson Storrow*,† —L.D.S. Edin., 28, Alva Street.  
*Sherratt, Benjamin*, —L.D.S. Eng., c/o F. Page, 6, Hope Street.  
*Simmons, Sewell*,† —L.D.S. Edin., 10, Charlotte Square.  
*Smith, John*,† —F.R.C.S. Edin., M.D., 11, Wemyss Place.  
*Smith, Robert Gavine*, —L.D.S. Edin., 1, Inverleith Gardens.

Stephen, John, Loanhead.  
 Stewart, James, 101, Joppa Road.  
*Stewart, James Ogilvie*, † — L.D.S. Edin., 5, Atholl Place.  
*Stewart, John*, † — L.D.S. Edin., 10, Hope Street.  
*Stewart, John Morris*, † — L.D.S. Edin., 1, Melville Street.  
 Stewart, William Alexander, — L.D.S. Edin., 40, Queen Street.  
 Stevenson, N. L., † — L.D.S. Edin., L.R.C.P. and S.E., 7, Alva Street.  
 Thorburn, William, 54, Rankeillor Street.  
*Turnbull, Frederick John*, † — L.D.S. Edin., 6, Randolph Place.  
 Tweedie, John, — L.D.S. Eng., 55, Gilmore Place.  
 Tweedie, William, — L.D.S. Edin., 55, Gilmore Place.  
 Walker, William Primrose, — L.D.S. Edin., 13, Denham Green  
 Terrace, Trinity.  
 Warrack, Malcolm, — L.D.S. Edin., 10, Charlotte Square.  
*Watson, George Wilkie*, \*† — L.D.S. Edin., 15, Coates Crescent.  
*Watt, Thomas Percy Wolston*, † — L.D.S. Edin., 13, Stafford Street.  
 Wilson, Alexander, || — L.D.S. Edin., 19, Lauriston Place.  
*Wilson, David*, † — L.D.S. Edin., 29, Minto Street.  
 Wilson, James Murray, — L.D.S. Edin., 9, St. Mary's Place, Portobello.  
 Wood, James, 33, Lauriston Place.  
 Wylie, David Neil, 1, College Street.  
*Young, John Alexander*, † L.D.S. Edin., 90, Morningside Road.

EDMONTON. Pop. 46,800.

Richards, Arthur, — L.D.S.I., 60, Fore Street (Upper).

EGHAM. Pop. 9,656.

*Bacon, W. B., Junior*, — L.D.S. Eng., Northdene.  
 Mahomed, Herbert Abdallah Selim, Villa Franca, The Avenue.

EGREMONT. Pop. 5,761.

*Bendall, Frederick*, † — L.D.S. Eng., 41, Church Street.  
*Keizer, Herbert*, † — L.D.S. Edin., 25, Church Street.  
 Kelley, William, — L.D.S.I., 106, King Street.  
 Longrigg, William Smith, 23, Seabank Road.  
 Luya, Charles John, — L.D.S. Edin., 92, Green Lane.  
*Woods, E. C.*, — L.D.S. Edin., 95, King Street.

ELGIN, N.B. Pop. 7,800.

Cormack, John, — L.D.S. Glas., 16, Institution Road.  
*Heron, Arthur*, — L.D.S. Edin., 26, North Street.  
*Shiach, Gordon Reid*, \* — L.D.S. Edin., 1, North Guildry Street.

ELLAND. Pop. 10,412.

Hodson, George, Church Street.

ELLESMERE PORT. Pop. 1,945.

Roberts, Rowland, 96, Station Road.

ELY. Pop. 7,713.

*Mudie, Walter*, — L.D.S. Eng., Stuart House.

ENFIELD. Pop. 453,428. [See London.]

Gabriel, Arnold Maurice, —L.D.S. Eng., Hazlewood Lodge, London Road. [Road.  
Jones, Frederick Warner, —L.D.S. Eng., Hazlewood Lodge, London  
Rowstron, Ronald N. M., —L.D.S. Eng., Kyrle House, Windmill Hill.  
Smithyman, Joseph Randall, Chase Side.

ENNISKILLEN. Pop. 5,600.

Stansfield, George Henry, 19, Darling Street.

EPSOM. Pop. 10,918.

Godfrey, Thomas, —L.D.S. Eng., Gibraltar House, High Street  
Keeling, George Ratcliffe, Junior, —L.D.S. Eng.

EXETER. Pop. 47,400.

*Ackland, John McKno*,\* —L.D.S., M.R.C.S. Eng., 24, Southernhay.  
Brand, E. E., Mansion House, Cathedral Yard.  
*Browne-Mason, J. T.*, 6, West Southernhay.  
*Finch, A. G.*, —L.D.S. Eng., The Briars, Alphington.  
Garland, F. G. D., —L.D.S.I., 2, Deanery Square, the Close.  
*Goard, Thomas Arthur*, —L.D.S., M.R.C.S. Eng., L.R.C.P. Lond.,  
28, Southernhay West.  
*Goodman, William Henry*,\* —L.D.S. Eng., 44, Southernhay West.  
*Goodman, William Joseph*, 44, Southernhay West.  
Holden, Henry John, 28, Southernhay West.  
Lane, Edward Henry, 56, Queen Street.  
Loveluck, Edmund, 2, Maddox Road, Paul Street.  
*Mallett, John Aubrey*, —L.D.S. Eng., 4, Bedford Circus.  
*Mason, Henry Biging*,\* —L.D.S. Eng., 3, Bedford Circus.  
*Mundell, Stephen*,\* —L.D.S. Eng., 38, Southernhay West.  
Pasmore, George Frederick, —L.D.S.I., Speranza, High Street.  
Ross, George, 25, Queen Street.  
Sanders, Clement Henry, 88, Queen Street.  
Sergison, John, 24, St. Sidwell Street.  
Silver, Clifford Marking, —L.D.S. Eng., 3, Bedford Circus.  
Steele-Perkins, Arthur Edward, —L.D.S. Eng., 29, St. Sidwell's.  
Turner, Richard Vicary, The Dispensary, Queen Street.

EXMOUTH. Pop. 10,487.

Fox, Sylvanus Bevan, —L.D.S. Eng., Edgehill.  
*Haycroft, Frederic Theodore*, —L.D.S. Eng., 4, Bicton Terrace.

EYNSHAM. Pop. 1,597.

Howe, Henry Albert.

FAILSWORTH (LANCS). Pop. 10,400.

Whitehead, Thomas, 192, Dob Lane.

FAIRFORD. Pop. 1,401.

Manning, Henry, High Street.

FAKENHAM. Pop. 2,912.

Plattin, Henry Ramm.

FALKIRK. Pop. 16,610.

*Cumming, Peter*, —L.D.S. Glas., 44, Graham's Road.

Hill, Robert, —L.D.S. Edin., Rosehill, Camelon.

FALMOUTH. Pop. 11,773.

Donald, John Alexander, —L.D.S. Eng., 40, Market Street.

Everett, Charles, —L.D.S. Eng., 34, Market Street.

Phillips, Arthur Robert, —L.D.S. Eng., 3, Grove Place.

Solomon, William Henry, 40, Market Street.

Stevens, Andrew, 52, Church Street.

FAREHAM. Pop. 8,246.

Chignell, Alfred, Thelwall.

FARNHAM. Pop. 6,124.

Griffith, John, 24, Borough.

*Loughurst, S.*, —L.D.S. Eng., Wilmer House.

Wallis, David Henderson, —L.D.S.I., 25, The Borough.

FARRINGDON. Pop. 2,900.

Butler, Augustus Edward, Gloucester Street.

FAVERSHAM. Pop. 11,294.

Green, Hampden Ernest William.

Jenkins, Evan Walter, 6, Market Place.

*Willson, Reginald George*, —L.D.S. Edin., Thorne House, Newton Road.

FELLING-ON-TYNE. Pop. 17,500.

Elliott, John Edward, 38, High Street.

FENNY STRATFORD. Pop. 4,799.

Parry, Joseph, 24, George Street.

FISHGUARD. Pop. 1,500

George, Enos, High Street.

Lewis, Thomas

FLEET (HANTS). Pop. 2,021.

Ray, William Frederic, 173, Fleet Road.

FLEETWOOD (LANCS). Pop. 12,093.

Cardwell, Edward, Junior, —L.D.S. Eng., Bank House.

Lewthwaite, Edwin, 5, Upper Queen's Terrace.

Lofthouse, James, Dock Street.

FOLKESTONE. Pop. 30,694.

*Allen, R. W.*, —L.D.S. Eng., 71, Sandgate Road.

*Bowkley, A. H.*, 63, Sandgate Road.



Bradlaw-Phillips, Philip, 38, Sandgate Road.  
 Crane, Andrew James, —L.D.S.I., 71, Sandgate Road.  
 Drury, Richard Moutray.  
 Dubois, Edmund William.  
*Ellis, George Garnett,\** —L.D.S. Eng., 49, Sandgate Road.  
 Giles, James John, 44, Guildhall Street.  
 Giles, Walter, —L.D.S. Eng., 68, Guildhall Street.  
*Henry, Martin,\** —L.D.S. Eng., 63, Sandgate Road.  
 Lea, John, 4, Harbour Street.  
 Seville, J. W., —L.D.S. Eng., 71, Sandgate Road.  
 Van der Pant, Francis John, —L.D.S.I., 22, Kingsnorth Gardens.  
 Walton, George Chapman, —L.D.S.I., 48, Sandgate Road.

## FOULRIDGE. Pop. 1,373.

Walker, Henry, 25, Station Road.

## FOULSHAM. Pop. 934.

Maddison, Henry Gildon.

## FOWEY. Pop. 2,258.

Wellington, James, Myrtle House.

## FRASERBURGH. Pop. 8,998.

Burnett, Robert, Broad Street.

## FROME. Pop. 11,055.

Bates, George Tweedie.  
 Harrold, Frederic, 4, Bath Street.  
*Hayman, Alfred George,* —L.D.S.I., The Bridge.  
 Sage, Charles James, Market Place.

## GAINSBOROUGH. Pop. 14,541.

Burrows, Richard, Market Place.  
 Wood, George Arnold, —L.D.S. Edin., 10, Spring Gardens.

## GALASHIELS, N.B. Pop. 17,245.

*Bain, Alexander Henderson,* —L.D.S. Edin., 1, Bank Street.  
*Henderson, J. S.,* —L.D.S. Edin., 9, Church Street.

## GALWAY. Pop. 13,800.

Anderson, Henry James, —L.D.S.I., Mill Street House.  
*Anderson, Samuel,* —L.D.S. Glas., Mill Street House.

## GATESHEAD. Pop. 109,887.

*Brewis, George,†§* —L.D.S. Edin., 2, Catherine Terrace, High West Street.  
*Brown, Samuel,†§* 17, High Street West.  
 Elliott, John Edward, 43, Askew Road.  
 Gardner, Robert, 1, Union Place, Coatsworth Road.  
 Gibbons, Stephen, 3, King James Street.  
 Stanithorpe, James.  
*White, William,†§* 6, Walker Terrace.

GLASGOW. Pop. 565,720.

Agnew, James, 27, Elmsbank Street.

Agnew, Joseph,\* 194, Bath Street.

*Anderson, William Donald*, —L.D.S. Glas., 8, Somerset Place, W.

Anderson, William Wallace, —L.D.S. Glas., 32, Barrington Drive.

*Angus, John Gilchrist Stewart*, —L.D.S. Glas., 256, Bath Street.

Beamish, Thomas, 12, Newton Street, Charing Cross. [Cross.

*Biggs, John Austin*,† —L.D.S. Glas., 3, Woodside Place, Charing

Black, John Smillie, 9, Willowbank Street.

*Bowie, James*, —L.D.S. Glas., 6, Hillfoot Street, Dennistoun.

Boyd, David Paton, —L.D.S. Glas., 2, Newton Terrace.

*Broughton-Head, Leslie Charles*,† —M.B., Ch. B. Glas., L.D.S. Eng., 163, Bath Street.

*Brown, Thomas McNair*, —L.D.S.I., 50, St. George's Road.

*Brownlie, James Rankin*,\*† —L.D.S. Eng., 10, Brandon Place, West George Street.

Bryan, James, 389, Springburn Road.

Buntin, James, —L.D.S. Glas. 510, Gallowgate.

*Cameron, Donald R.*, —L.D.S. Glas., 118, Sauchiehall Street.

Cameron, James, —L.D.S. Glas., 77, Main Street, Gorbals.

Christie, John, 3, Gray Street.

*Clark, George*, 72, Canning Street, Calton.

Cubie, Adam, —L.D.S. Glas., 5, Campbellfield Street.

Cumming, James, —L.D.S. Glas., Albany Chambers, 534, Sauchiehall Street.

*Dall, William*,† 8, Newton Place, Charing Cross.

Dallachy, James Waddel, —L.D.S. Glas., 145, Greenhead Terrace, Bridgeton.

Dempster, Robert, 252, Buchanan Street.

Dickie, Matthew, 17, Elmbank Street, Charing Cross.

*Douglas, James Carfrae*, —L.D.S. Eng., 197, Bath Street.

*Dunlop, David*, —L.D.S. Eng., 27, Sandyford Place.

Dunlop, John.

Dunn, James, —L.D.S. Glas., 93, London Street.

Dunn, Samuel, —L.D.S. Glas., 94, Regent Terrace, Stirling Road.

Fergus, Edward Oswald,\*† —L.D.S. Glas., 12, Clairmont Gardens.

*Forrest, James Dick*, —L.D.S. Glas., 114, Dixon Avenue, Crosshill.

Forrest, William Stewart, —L.D.S. Glas., 319, Sauchiehall Street.

Foulds, John, 13, Elmbank Street.

Foulds, William Hyndman, —L.D.S. Glas., 2, Belmont Street, Hillhead.

Fulton, Robert, 271, Sauchiehall Street.

Fyfe, John Hutchison, —L.D.S. Glas., 18, Westminster Terrace, Sauchiehall Street.

Galbraith, William Richardson, 448, Argyle Street.

Galloway, John, —L.D.S. Edin., 225, Paisley Road, West.

*Gardner, John Colquhoun*, —L.D.S. Glas., 95, Bowman Street, Queen's Park.

- Geercke, Henry John Augustus, 11, Great Western Road.  
*Grant, Robert Smith*, —L.D.S. Glas., 211, Great Western Road.  
*Gray, William Howard*, 17, Elmbank Place.  
Guthrie, James, Baillieston.  
*Hepburn, James*, —L.D.S. Glas., 201, St. George's Road.  
*Hepburn, Walter Bruce*, —L.D.S. Glas., 420, Sauchiehall Street.  
Jarvie, Alexander, 509, Sauchiehall Street.  
Kennie, George Campbell, —L.D.S. Glas., 25, Elmbank Crescent.  
Law, William Jackson, † —L.D.S. Eng., 12, Claremont Gardens.  
McCash, Andrew McMillan, —L.D.S. Glas., 4, Newton Street, Charing Cross.  
*McCash, James M.*, † —L.D.S. Glas., 3, Balmoral Crescent, Queen's Park.  
M'Cracken, Samuel Wylie, —L.D.S. Glas., 286, Bath Street.  
*McCrindle, John Campbell*, —L.D.S. Glas., 33, Kilmarnock Road, Shawlands.  
Macfarlane, John, 271, Rutherglen Road.  
McGowan, John William Alexander, —L.D.S. Glas., 12, Newton Street, Charing Cross.  
Macgregor, Alexander, —L.D.S. Glas., 336, Maxwell Road.  
Macgregor, J. Beveridge. —L.D.S. Glas., 158, Sauchiehall Street.  
MacKay, William Donald, —L.D.S. Glas., 345, Parliamentary Road.  
McKay, Hugh, —L.D.S. Glas., L.R.C.S., L.R.C.P. Edin., 264, Bath Street.  
*McMillan, John Mathieson*, —L.D.S. Glas., 112, Cambridge Street, W.  
Manson, John James, —L.D.S. Glas., 121, Old Dalmarnock Road.  
*Martin, William Foulds*, † —L.D.S. Glas., 194, Oxford Street.  
Maxwell, David, 15, India Street, Partick.  
*Miller, Hugh John*, —L.D.S. Glas., 3, Armadale Street, Dennistoun.  
Miller, James, —L.D.S. Glas., 1, Royal Terrace, Crosshill.  
Miller, John Steven, —L.D.S. Glas., 7, Windsor Street.  
Mitchell, Alexander, Park View, Uddingston.  
Morris, James, 6, Kelvinhaugh Street.  
Murray, Archibald Lindsay, 105, Great Hamilton Street.  
Nairn, John, —L.R.C.P. Edin., 60, Park Drive South, Whiteinch.  
*Naismith, Alexander*, † —L.D.S. Glas., 47, Abbotsford Place.  
Nance, John Henry Martin, 266, St. George's Road.  
Nance, Thomas Martin, 135, Mains Street, West.  
*Noble, James*, —L.D.S. Glas., 49, Abbotsford Place.  
Parson, Frederick Parr, 186, Byres Road.  
*Patterson, William*, —L.D.S. Glas., 22, India Street.  
Pinkerton, Robert Hugh, 43, Naburn Street, South Side.  
Pinkerton, William Waterson, 285, Crown Street.  
*Price, Rees*, \*† —L.D.S. Eng., 163, Bath Street.  
Provan, David Lees, —L.D.S. Glas., 2, Hawarden, Partick Hill.  
Robertson, Alexander Page, —L.D.S. Glas., 2, Cathedral Street.  
Russell, Alexander, —L.D.S. Glas., 419, Great Western Road, Kelvinbridge.

- Scott, Walter Paton, —L.D.S. Glas., 306, Bath Street.  
 Shirlaw, David, 3, Sauchiehall Street.  
 Sinclair, Alfred Peter, 196, Pitt Street.  
 Sinclair, Charles Stewart, —L.D.S. Glas., 196, Pitt Street.  
 Sinclair, James Stewart, 248, Sauchiehall Street.  
 Steele, John Cockburn, 273, Kenmure Street, Pollokshields.  
*Stromier, Joseph Herman*, —L.D.S. Glas., 3, Queen's Square.  
 Taylor, Alexander Gardner, —L.D.S.I., 535, Eglinton Street.  
 Taylor, Andrew Buchanan, 301, Paisley Road.  
*Taylor, Thomas Hamilton*, —L.D.S. Glas., 147, Bath Street.  
*Taylor, William*, —L.D.S. Glas., 290, Duke Street.  
 Thomson, John Thomson Kilpatrick, —L.D.S. Edin., 148, Norfolk Street. [head.  
 Thomson, Percy James, —L.D.S. Glas., 38, Belmont Gardens, Hill-  
 Thomson, Robert, —L.D.S. Glas., 1, Great Wellington Street.  
 Tracey, Thomas Fielding, 3, West Campbell Street.  
 Vansittart, William, 253, Sauchiehall Street.  
*Vicar, William*, 571, Alexandra Parade, Dennistoun.  
*Wallace, William*,\* —L.D.S. Glas., 25, Newton Place.  
 Waterhouse, Aquila, 220, Sauchiehall Street.  
*Watson, John Barnes*, —L.D.S. Glas., 8, Newton Place.  
 Watt, John, —L.D.S. Glas., 1, Derby Terrace.  
 Webster, John Forbes, —L.D.S. Glas., 6, Highburgh Road, Dowan-  
 hill.  
*Whyte, Alexander*, 140, Mains Street, West.  
*Whyte, Andrew Clark*, —L.D.S. Glas., 42, Dundas Street.  
 Wills, Robert McDonald, —L.D.S. Glas., 353, Paisley Road.  
*Wilson, Thomas*, —L.D.S. Glas., 4, Corunna Street, Dumbarton Road.  
 Wilson, William Long, 50, Great Western Road.  
 Woodburn, James Cowan, —L.F.P.S. Glas., M.D., 197, Bath Street.  
*Woodburn, William Holt*, —L.D.S. Glas., 17, Carlton Place.  
*Woodburn, William Stead*,\* —L.D.S. Glas., 17, Carlton Place.  
*Wyloe, William Douglas*, 195, Paisley Road.  
*Young, Alexander Brownlie*, —L.D.S. Glas., 108, Renfield Street.

GLOSSOP. Pop. 21,526.

- Hardman, John, —L.D.S.I., Norfolk Square, and Ingle Nook.  
 Mitchell, Julien, 32, High Street, E.

GLOUCESTER. Pop. 47,943.

- Cockburn, William Frater*, 10, Clarence Street.  
 Fox, Frederic Neidhart, —L.D.S. Eng., Sussex House, Clarence Street.  
*Fox, Walter Henry*, —L.D.S. Eng., Clarence Street.  
 Gardner, Charles, —L.D.S.I., Ivy House, Barton Street.  
*Gardner, Charles Smith*, —L.D.S. Eng., Ivy House, Barton Street.  
 Midgley, Charles Henry, Somerset Lodge, Southgate Street.  
 Norman, Antonio James, 105, Northgate Street.  
*Sievers, Rudolph*, —L.D.S.I., 3, College Green.  
 Whittles, Henry, Broad Street, Newent.

## GODALMING. Pop. 8,748.

*Barnes, Edward*, Fern Bank, Ockford Road.

*Pilcher, William Henry*, —L.D.S. Eng., Notley, Ockford Terrace.

## GOOLE. Pop. 16,576.

*Turton, Charles Mitchinson*, —L.D.S. Eng., Belgravia.

Turton, Thomas Coates, Belgravia.

## GOSFORTH. Pop. 1,500.

Gaitskell, James.

## GOSPORT. Pop. 28,879.

French, Benjamin, 95, North Street.

Smith, William Backwell, 47, High Street.

## GOVAN. Pop. 63,600.

Skinner, John, 957, Govan Road.

## GRANTHAM. Pop. 16,745.

Rogers, William Sexton, 31, North Parade.

Trotter, Arthur Oscar, —L.D.S. Eng., 35, High Street.

Trotter, Fred, 35, High Street.

*Vinsen, Frederick Harold*, —L.D.S.I. 24, St. Peter's Hill.

## GRANTOWN-ON-SPEY (N.B.). Pop. 1,568.

Allan, James, —L.D.S. Edin., Ballintomb.

Duncan, William.

## GRAVESEND. Pop. 27,175.

*Bettridge, Albert Edward*, —L.D.S. Eng., 36, Harmer Street.

*Constant, F. C.,\** —L.D.S. Eng., 169, Parrock Street.

Lucas, George J.,\* —L.D.S. Edin., Lindon Lodge, North Fleet, and  
23, Northumberland Avenue, London, S.W.

Perry, Horatio Nelson, 73, High Street.

Shrubsole, Ernest, —L.D.S. Eng., 36, Harmer Street.

## GRAYS. Pop. 13,831.

Guy, Daniel, 2, New Road.

## GREAT MALVERN.

*Steynor, Arnold William*, —L.D.S. Eng., 'Pembridge,' Graham Road.

*Steynor, H. S.*, —L.D.S. Eng., 'Pembridge,' Graham Road.

## GREAT YARMOUTH. Pop. 51,250.

*Bambridge, Henry*, —L.D.S.I., 27, King Street.

Cobb, John Swanston, —L.D.S. Eng., 29, King Street.

Huke, James William, Regent Road.

Poll, William Sheppard, 32, Regent Road.

Pulford, Herbert, —L.D.S. Eng., 42, Regent Road.

Stringfield, George William, —L.D.S. Edin., 28, King Street.

GREENLAW. Pop. 750.

Leitch, David.

GREENOCK. Pop. 67,626.

Brown, John Ross, 30, Cathcart Street.

Fisher, William Bowman, 6, George Square.

Ingles, Adam H., —L.D.S. Glas., 4, Argyle Street.

McBride, William, 9, George Square.

Stewart, Thomas.

Woodburn, William de Brassey, —L.D.S. Glas., 20, Eldon Street.

GRIMSBY. Pop. 46,783.

Barker, Frederick Henry, 4, Town Hall Street.

Baxter, Campbell Hossack, —L.D.S. Edin., 328, Cleethorpe Road.

Dennis, John Morley, 45, Victoria Street West.

Gooseman, John Brocklesby, 166, Cleethorpe Road.

Hinton, John Henry, —L.D.S. Eng., 53, Victoria Street.

Howkins, Thomas Maudsley,\* —L.D.S.I., 53, Victoria Street.

Mawer, James William, —L.D.S. Eng., 7, Grosvenor Crescent.

Robertson, J. H., —L.D.S. Eng., Town Hall Square.

Savery, William Henry, —L.D.S.I., St. Peter's Road, Cleethorpes.

Spurr, Alfred Peter, —L.D.S. Eng., Melbourne House, Town Hall Square.

Willson, Cornelius, 452, Victoria Street.

GUERNSEY.

Hugo, George Joseph,\* 15, Allen Street.

Hugo, Samuel George,\* 15, Allen Street.

Maguire, Edmund William, New Place, Vauvert.

Maguire, William Gregory, Hubits, St. Martin's.

Murphy, T., —L.D.S.I., Castle View, 19, Saumarez Street.

Nottingham, James Frederick, —L.D.S.I., Heyward House, St. Martin's.

Paen, James Simon, 26, Commercial Arcade.

GUILDFORD. Pop. 15,937.

Brookhouse, Charles Scott, —L.D.S. Edin., High Street.

Cocksedge, George Bloomfield, Dudley House, Portsmouth Road.

Hope, Hubert Lindsay Curling, —L.D.S., M.R.C.S. Eng., L.R.C.P. Lond., Portland House.

Jacobs, William, 40, High Street.

King, Arthur, —L.D.S. Eng., 188, High Street.

Peatfield, T. H., —L.D.S. Eng., 188, High Street.

GUISELEY. Pop. 4,558.

Archer, Joseph Sykes, Oxford Street.

HALESWORTH. Pop. 2,549.

Gostling, John Henry.



## HALIFAX (YORKS). Pop. 104,933.

Cobb, George Myhill, 64, Northgate.  
Feather, George, 6, North Parade.  
Hanson, Oswald, 1, Ward's End.  
Hodgson, Algeon Sugden, —L.D.S. Eng., Trafalgar House.  
Hodgson, John, Trafalgar House, King Cross Road.  
Parsons, Oswald.  
Pass, Frederick.  
Pearson, George, 33, St. James's Road.  
*Pettyt, Samuel Holt*, 6, Rhodes Street.  
Robertshaw, Thomas, Ward's Hall.  
Townend, Thomas, 15, Wade Street.  
Wade, William, 14, Lord Street.  
*Weeder, William*, —L.D.S.I., 59, York Place, Rhodes Street.  
*Wolfenden, Arthur Blagbrough*, || —L.D.S.I., 10, Ward's End.

## HALSTEAD. Pop. 6,072.

Coles, Samuel John, 25, High Street.  
Marlar, John, 49, High Street.

## HAMILTON. Pop. 32,775.

Kerr, Matthew Frederick Ralston, —L.D.S. Glas., Brandon Street  
New Cross.  
Liebow, Edward, 11, Townhead Street.  
*Macqueen, Norman*, 33, Cadzow Street.

## HAMPTON HILL. Pop. 2,500.

Greenslade, Charles Bremridge.

## HANLEY. Pop. 61,645.

*Baines, Arthur*,\* —L.D.S.I., 33, Lichfield Street.  
*Cooper, William Arthur*, Waverley House, Snow Hill.  
Crappier, Harold Sugden, —L.D.S., M.R.C.S. Eng., L.R.C.P. Lond.,  
The White House.  
Fogg, Arthur, —L.D.S. Eng., 1, Havelock Place, Shelton.  
Hall, Richard James, —L.D.S. Glas., 33, Lichfield Street.  
Jones, James Alfred, —L.D.S. Glas., 26, Albion Street.

## HARPENDEN. Pop. 4,725.

Busby, James.

## HARROGATE. Pop. 28,414.

*Barstow, James*, 80, Station Parade.  
Beaumont, T., —L.D.S.I., Erina, Cheltenham Parade.  
Carter, Frank, —L.D.S.I., Weetwood Lodge, 25, Park Drive.  
Dearden, William.  
Dick, David, —L.D.S. Edin., 4, West End Avenue.  
Drewitt, Alfred, —L.D.S. Eng., 15, Prospect Place.  
*Gaddes, Thomas*, —L.D.S. Eng. and Edin., 104, Station Parade.  
Gask, A. C., —L.D.S. Eng., 3, York Road.

Handforth, Edward, 4, Parliament Street.

*King, Thomas Edward*, —L.D.S. Eng., The Corbels, York Road (retired).

Marshall, William Tunncliffe, 8, Princes Street.

*Walkington, T.*, —L.D.S. Eng., 11, Station Square.

*Wood, Colin Dawson*, —L.D.S. Eng., 12, Princes Square.

*Wood, Robert Ernest*,\* —L.D.S. Eng., 12, Princes Square.

*Wood, Walter*, —L.D.S.I., Bank Buildings, 4, Princes Street.

HARROLD. Pop. 1,000.

Le Fevre, William, The Pharmacy.

HARROW-ON-THE-HILL. Pop. 10,220.

Brown, George, Hillside, Marlborough Hill.

*Fox, Ernest William*, —D.D.S. Phil., Hillandale House, High Street.

Gunn, Samuel John, High Street.

Martin, Henry Havelock, —L.D.S. Edin.

HARTLEPOOL. Pop. 22,787.

Horsley, John, 104, High Street.

Jackson, Henry, 58, Northgate.

HASLINGDEN. Pop. 18,543.

*Turner, J. D.*, —L.D.S. Eng., Well House.

HASTINGS. Pop. 65,528.

Allen, Robert Westmore, —L.D.S. Eng., 3, Carlisle Parade.

Annette, Alfred George.

Crocket, Thomas Jackson, 35, Havelock Road.

Easton, James Blore, 64A, High Street.

*Henry, Archibald Rutledge*, —L.D.S. Eng., 38, Wellington Square.

*Henry, George*,\* —L.D.S. Eng., 38, Wellington Square.

Huckle, Arthur Henry Headley, —L.D.S. Eng., Rothesay Bank, Edmund Road.

Oddie, A. R., —L.D.S. Eng., c/o Shepherd, 6, Carlisle Parade.

Pearce, Arthur Chalmers, 193, Queen's Road.

*Richards, John*, —L.D.S. Glas., 43, Wellington Square.

Shepherd, Norman Percy, —L.D.S. Eng., 38, Wellington Square.

*Sheppard, Fred*, —L.D.S.I., 19, Robertson Street.

HAVANT.

Chigrell, Thomas Alexander, —L.D.S. Eng., 16, West Street.

HAVERFORDWEST. Pop. 6,007.

Rees, William Harries, Bridge End Square.

Saies, Charles Lochore, —L.D.S. Eng., Willesden House.

HAVERHILL. Pop. 4,864.

Griggs, Edward Walter, 24, High Street.

HAWICK. Pop. 19,200.

Vernon, Joshua John, 81, High Street.

## HAWORTH (YORKS). Pop. 5,181.

Greenwood, George Edward, Mill Hill.

## HAYWARD'S HEATH. Pop. 3,717.

Parrett, Edward, Glencoe, Bolnare Road.

## HEBDEN BRIDGE. Pop. 7,536.

Gibson, James, Oxford House.

Gibson, Thomas Binney, Vine Cottage, Osborne Street.

## HEREFORD. Pop. 20,265.

Clarke, Thomas Ward, 3, High Town.

Fowler, Charles Jevons, —L.D.S. Eng., 46, Chandos Street.

Guy, Edwin, 27, Eign Street.

Levason, Arthur Grenville, —L.D.S.I., 12, Bridge Street.

*Levason, Peyton Grenville*, —L.D.S. Eng., 12, Bridge Street.

*Miller, Quintin Herbert*, —L.D.S. Eng., 2, King Street.

Robertson, Andrew, 12, Castle Street.

## HERNE BAY. Pop. 3,830.

*Husbands, J. E.*, —L.D.S. Edin., East Cliff Lodge.

*Moore, Robert Henry*, —L.D.S. Eng., 16, High Street.

## HERTFORD. Pop. 9,320.

Durrant, George Reynolds, Old Cross.

Hudspeth, Robert Atkinson, —L.D.S. Edin., Rose-Neath, Fore Street.

*Lacey, William John Mark*,\* —L.D.S. Eng., 6, Ware Road.

## HEXHAM.

Bell, Martin, —L.D.S., 37, Hencotes.

## HEYWOOD (LANCS). Pop. 25,461.

Bentley, John Nuttall, 30, Bridge Street.

*Kershaw, George*,§|| —L.D.S. Eng., Moss Cottage, Starkey Street.

Livesy, Thomas Edward, —L.D.S. Eng., 25, Manchester Street.

Rothwell, John Clarkson, —L.D.S. Eng., 135, Manchester Street.

## HIGH BARNET.

*Clayton, Edward*, —L.D.S. Eng.

## HIGH WYCOMBE. Pop. 25,320.

Haddock, Arthur John, —L.D.S. Eng., The Willows.

Humphreys, Harold Francis, —L.D.S. Eng.

*Mawer, Edward*, —L.D.S.I., Woodlands.

*Padgett, Farnk Joseph*, —L.D.S. Eng., 8, High Street

## HINCKLEY. Pop. 11,304.

Knight, William, 33, Castle Street.

## HITCHIN. Pop. 8,862.

*Blain, Edouard John*,\* —L.D.S. Eng., 2, Bucklersbury.

## HOLBEACH. Pop. 5,032.

Best, James, High Street.

HOLSWORTHY. Pop. 1,371.

Pellow, Lucius Henry, —L.D.S.I.

HOLYHEAD. Pop. 10,072.

Jones, John, 19, Market Street.

Williams, William, —L.D.S. Edin., D.D.S. Mich., 4, Church Terrace.

HOLYWELL. Pop. 2,652.

Bennett, John William.

Hughes, David, 45, High Street.

HOLYWOOD. Pop. 1,500.

Macaulay, Joseph John, 52, High Street.

HONITON. Pop. 3,271.

Holway, John Threader, Cleveland House, New Street.

HORNCASTLE. Pop. 4,038.

Betts, William, 52, North Street.

HORSHAM. Pop. 9,445.

*King, James Reginald*, 24, Carfax.

Williams, Herbert Hamilton, 51, North Street.

HOVE (SUSSEX). Pop. 36,535.

Bollard, Willie Julian, —L.D.S. Eng., 60, Rutland Gardens.

Dougan, William Bateman, —L.D.S. Eng., 6, Brunswick Place.

HOYLAKE (CHESHIRE). Pop. 6,500.

*Kenworthy, F. C.*, —L.D.S. Eng., 18, Market Street.

HUDDERSFIELD (YORKS). Pop. 95,008.

Barrett, Alfred, New Road, Meltham.

*Birkett, William*, —L.D.S. Eng., 28, New North Road.

*Bradbury, Edward Arthur*, 22, Trinity Street.

Burnell, Benjamin, 35, Crescent, Birkby Lane.

Doran, Samuel Sydney, —L.D.S. Eng., 28, New North Road.

Duffin, Thomas, 56, New North Road.

Holland, John Charles, —L.D.S. Edin., 64, West Parade.

Lees, Joseph, Wood Street, Longwood.

Lees, Tom, —L.D.S. Eng., Wood Street.

*Lodge, Alonza*, Salford-in-Lockwood.

Lodge, Parker, Salford-in-Lockwood.

Masters, Frederick Leonard Floyd, —L.D.S. Edin., 29, New North Road.

Masters, Tankard, 29, New North Road.

*Milnes, Joe Henry*, —L.D.S.I., 8, South Parade.

Oldfield, Frederick, 69, Bradford Road North, Thornhill Place.

Oldfield, Joe, 26, Stead Buildings, Hillhouse Road.

Oldfield, Joe Hinchliffe, West View, Primrose Hill.

Oldfield, John, 49, Prospect Street.

Swift, Charles Henry, 173, Bradford Road.

Sykes, Henry, Moldgreen.

Whitteron, Alfred, 25, West Parade.

# HULL. Pop. 234,275.

*Audas, Thomas*, —L.D.S.I., 33, George Street.

Bentley, Joseph, Barrow-on-Humber.

Bergman, Lewis Hansell, 12, Story Street.

Bibbero, Barnett, 175, Hessle Road.

*Blyth, Zechariah Charles*, —L.D.S.I., 2, College Gardens, Beverley [Road.

Bristow, Herbert, —L.D.S. Eng., Beulahville, Southfield, Hessle.

*Charter, James Leach*, —L.D.S.I., 46, Prospect Street.

Charter, John, 46, Prospect Street.

*Fisher, George*, —L.D.S. Glas., 84, Wright Street.

Garbutt, Henry Preston, 40, George Street.

Grindell, John, 104, North Boulevard.

Harding, Sigismond James, 76, Lister Street.

Harrison, Robert Eunson, —L.D.S. Eng., 33, George Street.

Hart, Frederick Emile, 23, Lowgate.

Haskew, William Hunt, —L.D.S. Eng., Dunallan House, 7, Albion [Street.

Hay, William, 4, Regent's Terrace.

Hetherington, Thomas Paine, 53, Hessle Road.

Hill, John Thomas, 3, Story Street.

Hislop, John William, —L.D.S. Eng., 18, Albion Street.

Hoyles, George, 8, Holderness Road.

Jebson, Thomas Henry, 4, Smeaton Street.

*King, Herbert*, —L.D.S. Eng., 27, Albion Street.

Lamb, Charles Henry, 53, Wellington Lane.

Metcalfe, Christopher Luccock, 13, Whitefriar Gate.

Mountain, John Joseph, Tremayne House, Anlaby Road.

Newton, George Robert, 45, Witham.

Owbridge, Walter Tom, 122, Osborne Street.

Pearson, William Henry, 40, George Street.

Rankin, D. S., —L.D.S. Eng., 7, Albion Street.

*Rice, John Hayes*, 192, Park Avenue.

Ross, Charles William, Prospect House.

Shaw, Ward, 99, Westbourne Avenue.

Shepherdson, Welburn, 20, Argyle Street.

*Storey, John Charles*,\* —L.D.S.I., 7, Albion Street.

Thompson, John Spanton.

*Turton, Arthur William*, —L.D.S. Eng., 25, Albion Street.

*Wallis, Herbert*, —L.D.S. Eng., 33, Albion Street.

*Wallis, John George*,\* —L.D.S.I. and Glas., 33, Albion Street.

Willis, Thomas Joseph, 1, Story Street.

Wilson, George, —L.D.S.I., 4, Whitefriar Gate.

*Wilson, George Edward*,\* —L.D.S. Eng., 4, Whitefriar Gate.

# HUNGERFORD. Pop. 2,364.

Taylor, William Gee, Bridge Street.

Waddington, John William.

HUNSTANTON. Pop. 2,400.

Hardy, William, Gaddesby Villa.

HUNTLY, N.B. Pop. 4,136.

Chalmers, George, 12, Gordon Street.

HYDE. Pop. 32,768.

Ballinger, Charles Keene, 5, Edna Street.

Billinge, Mark, Market Street.

Howard, Robert, —L.D.S. Eng., 60, Great Norbury Street.

Ogden, Joseph, Melbourne House.

Sanderson, John, || —L.D.S.I., 107, Great Norbury Street.

HYPHE (KENT). Pop. 5,557.

Lemmon, Robert.

IDEN. Pop. 750.

Palmer, Robert, Iden Bungalor.

ILFORD. Pop. 41,240. [See London.]

Dunlop, John, 46, St. Alban's Road.

Stevens, Richard Henry, —L.D.S. Eng., 2, Clements Gardens, High [Road.

ILFRACOMBE. Pop. 8,557.

Choice, Felix, Camelot, Croft's Lea Park.

Dew, Charles Edward, —L.D.S. Edin., L.R.C.P., L.R.C.S. Edin.,  
1, Bath Place.

Morrison, Robert Paul, —L.D.S.I., 125, High Street.

Wing, John Clifford, —L.D.S. Eng., 3, Northfield Road.

ILKESTON. Pop. 25,383.

Wing, Samuel Whaley, Albion Buildings, Bath Street.

ILKLEY. Pop. 7,755.

Barron, James Bertrand, —L.D.S. Eng., The Grove.

Sugden, John, —L.D.S. Eng., Wood Rhydding, Shipton Road.

Thornton, Robert, —L.D.S. Eng., 3, Parish Ghyll.

Worfolk, George William, 16, Brook Street.

ILMINSTER. Pop. 2,287.

Sanders, John Fletcher.

INVERNESS. Pop. 21,249.

Fraser, James Leslie, —L.D.S. Edin., Castle Tolmie, foot of Bridge  
Street.

Fraser, John, 17, High Street.

Mackintosh, John Kyle, —L.D.S. Edin., Queensgate.

Mitchell, Henry, Seven Oaks, Fairfield Road.

IPSWICH. Pop. 66,622.

Britten, R. V., —L.D.S. Eng., 8, St. Matthew's Street.

Cole, John Fenn,\* —L.D.S. Eng., 11, Museum Street.

Franklin, Edward, 34, Silent Street.



Fraser, James Drummond, Kelburne Lodge, North Hill Road.  
 Goodwin, Herbert Benjamin, 63, Berners Street.  
*Malone, Charles Albert,\** —L.D.S. Eng., 16, Northgate.  
 Moseley, William Henry, 6, St. Matthew's Street.  
*Penraven, Allan Frederick,* —L.D.S. Eng., 8, St. Matthew's Street.  
*Rowbotham, Sam Blakey,* 30, St. Nicholas Street.  
*Snell, Norris,\** —L.D.S. Eng., 11, Museum Street.  
 Stewart, John William Edward, —L.D.S. Edin., 20, Museum Street.  
*Stewart, William Edward Gordon,* —L.D.S. Edin., 20, Museum Street.  
*Tindall, Charles,* 18, Westgate Street.  
*Tracy, Hugh Loveridge,* —L.D.S. Glas., 9, Lower Brook Street.

## IRONBRIDGE. Pop. 2,889.

Jinks, John.

## IRONVILLE. Pop. 3,500.

Greaves, William Samuel, Ironville.

## IRVINE (N.B.). Pop. 9,000.

Bower, Herbert Robertson, —L.D.S. Edin., Willow Bank.  
*Gillespie, John,* —L.D.S. Glas., Willow Bank.

## ISLE OF WIGHT. Pop. 78,700.

*Alabone, Alfred, Jun.,* —L.D.S. Eng., 133, High Street, Newport.  
 Alabone, Frank, 103, High Street, Newport.  
 Alabone, Walter, 120, St. James's Street, Newport.  
 Beaven, George Augustus, West Cowes.  
*Colyer, Horace Octavius,* Denbigh House, Ryde.  
 Colyer, Horace Charles, —L.D.S. Eng., Denbigh House, Ryde.  
*Daish, William George,* —L.D.S. Eng., Melville Hall, Melville Street, Ryde.  
 Daish, William Henry, Melville Hall, Ryde.  
*Ellis, John,* —L.D.S.I., Keynsham, Station Road, Sandown.  
 Freeman, John Robert, —L.D.S. Eng., Melville Hall, Ryde.  
*Griffin, Thomas Harold,* —L.D.S. Eng., Melville Hall, Ryde.  
*Griffin, Wilfred Ernest,* —L.D.S. Eng., Melville Hall, Ryde.  
 Hartry, George Birdseye, Sandown.  
 Hewett, William Herbert, Cowes.  
 Hill, George Barry, 4, St. John's Road, High Street, Ryde.  
 Martin, Wilfred Edenborough, —L.D.S. Glas., St. Leger, Royal Street, Sandown.  
*Mountain, W.,* —L.D.S. Eng., Bars Hill, Cowes.  
 Pollard, Henry Hindes, 168, High Street, Ryde.  
 Smith, William, 21, High Street, Ryde.  
 Smith, William Henry.  
*Warlow, Frank,* —L.D.S. Eng., Bars Hill House, Cowes.  
 Weston, Charles, —L.D.S.I., Dungate, Queen's Road, Shanklin.  
 Weston, Ernest, —L.D.S. Eng., Dungate, Queen's Road, Shanklin.  
 Wilson, Richard Edward, 11, Cross Street, Ryde.

JERSEY. Pop. 54,518.

*Colebrook, Frederick James*, —L.D.S.I., Barmoor, La Rocque.  
*Feltham, Owen Dalton*, 38, David Place, St. Heliers.  
*Payne, Ernest Charles*, —L.D.S.I., 55, Bath Street, St. Heliers.  
*Walden, Alfred Robert*, Beach View, Gorey.

KEIGHLEY. Pop. 41,560.

*Dalton, George*, —L.D.S. Eng., 17, Devonshire Street.  
*Heaton, Charles*, 7, Devonshire Street.  
*Sunderland, Wright*, —L.D.S. Glas., 5, Bow Street.

KEITH. Pop. 4,753.

*Nicol, Robert*, —D.D.S. Mich.

KELSO. Pop. 4,525.

*Hill, Duncan Allan*, —L.D.S. Edin., 20, Bridge Street.  
*Trainer, John Edward*, —L.D.S. Edin., 4, Roxburg Street.  
*Vernon, William Frederick*, Bowmont House.

KENDAL. Pop. 14,183.

*Bower, William Cameron*, —L.D.S. Glas., Strathkent.  
*Cutts, F. E.*, —L.D.S. Eng., Thorny Hills.  
*Fisher, William*, —L.D.S. Eng., 56, Stramongate.  
*Grayson, Alfred Edwin*, 70, Highgate.  
*Grayson, Frederick Charles*, 70, Highgate.  
*Scales, William*, 26, Finkle Street.

KENNOWAY. Pop. 1,500.

*Surenne, James Gabriel*, —L.D.S. Eng., Rowan Cottage.

KETTERING. Pop. 19,055.

*Finding, Clark*, Headlands.  
*Hope, W. H.*, 14, Silver Street.  
*Layton, Alfred*, —L.D.S.I., Gold Street.  
*Nichols, Ernest James*, —L.D.S. Edin., Flaxwell House, Station Road.  
*Surman, John Cornelius*.  
*Wood, Bryan Jardine*, —L.D.S. Eng., 14, Silver Street.

KEW. Pop. 2,699. [See London.]

*Hackett, John Henry*, 69, Priory Road, Kew Gardens.

KIDDERMINSTER. Pop. 24,800.

*Bostock, Arthur Leigh*, —L.D.S. Eng., 29, Church Street.  
*Daman, Karl*, —L.D.S.I., Caxton Chambers.  
*George, John*, 27, Stourbridge Road.  
*Mallinson, Cuthbert Septimus*, —L.D.S. Edin., 14, Mill Street.  
*Roberts, Henry*, 27, Mill Street.

KILDORRERY. Pop. 1,000.

*Gates, William*, The Cottage. (See Belfast.)

KILKENNY. Pop. 11,000.

*Carew, William King*, —L.D.S.I., 12, Patrick Street.

## KILMARNOCK. Pop. 29,435.

*Dunlop, Harry*, —L.D.S. Eng., 1, Portland Road.

*Dunlop, John*, —L.D.S. Eng., 1, Portland Road.

*King, Jonathan*, —L.D.S. Edin., 5 Portland Street.

*Lipscomb, John Moore*, —L.D.S. Eng., Dundonald Road.

## KINGSBRIDGE. Pop. 3,025.

*Adkins, Henry Daniel*, 3, Vine Terrace.

*Edwards, R. B.*, —L.D.S. Eng., Stanbrook.

## KING'S LYNN. Pop. 18,400.

*Count, Sydney*, 17, High Street.

*Wallace, William Harry Binckes*, 10, St. John's Terrace.

## KINGSTON-ON-THAMES. Pop. 34,375.

*Forsyth, William Frederic*, —L.D.S. Eng., Picton House.

*Higgs, Alfred*, Richmond Road.

*Higgs, Edwin Coster*, Richmond Road.

*Ide, Harry*, —L.D.S. Eng., Devon House, Eden Street.

*Hulland, Charles Richard*, 19, St. James's Road.

*Lockett, Frederick*, 3, Brook Street.

*Lockett, Reginald Frederick*, —L.D.S. Eng., 3, Brook Street.

*Mountford, Arthur Hambleton*, —L.D.S. Eng., Elm Lawn, Eden Road.

*Tamplin, Edward Cowper*, Eden Street.

## KINGSTOWN. Pop. 18,585.

*Sumerling, Arthur Newton*, —L.D.S. Eng., 3, Leinster Terrace,  
Upper George's Street.

## KIRBY MOORSIDE. Pop. 1,640.

*Lumley, John William*, Dale End.

## KIRKCALDY. Pop. 17,325.

*McKendrick, Archibald*, —L.D.S. Edin., 120, High Street.

*McKendrick, James Dawson*, 120, High Street.

*Peebles, John*, Kirkcaldy.

*Pringle, George*, Back Street, Pathhead.

*Roy, Kenneth John*, —L.D.S. Edin.

## KIRKHAM. Pop. 3,603.

*Ward, Henry Singleton*, Victoria Buildings.

## KNOCK (CO. DOWN, IRELAND).

*Watson, George Frederick*, —L.D.S. Edin., Rosslyn.

## LLANDUDNO (N. WALES). Pop. 7,282.

*Sheldon, Harry William*, —L.D.S., Glas., 8, South Parade.

## LAMPETER. Pop. 1,722.

*Evans, Jenkin William*.

*Evans, Roderick*, High Street.

LANCASTER. Pop. 31,038.

Arkle, William, 13, Penny Street.  
 Atkinson, Henry, 21, King Street.  
 Cardwell, Edward, 23, Market Street.  
 Cardwell, Ernest Edward, —L.D.S. Eng., 23, Market Street.  
 Cardwell, Harold, —L.D.S. Eng., 23, Market Street.  
 Cutts, Frederick Edward, —L.D.S. Eng., 36, King Street.  
 Cutts, John, 36, King Street.  
 Hall, John William, —L.D.S. Eng., Castle Chambers.  
 Harrison, Edmund, 25, Castle Hill.  
 Lord, James Lewtas, —L.D.S. Eng., 76, Regent Street.  
 Satterthwaite, Robert, —L.D.S. Eng., 20, Ullswater Road.

LARGAN.

Beaumont, Thomas, —L.D.S.I., Church Place.  
 Moore, James Millen, 52, High Street.

LARGS. Pop. 5,495.

Barr, Bryce, Medical Hall.  
 Caskie, Hendry, 17, Main Street.

LAUNCESTON. Pop. 4,053.

Hicks, Lewis, —L.D.S.I., Church Stile House.

LAVENHAM. Pop. 2,018.

Lakeman, Jasper James, —L.D.S.I., Highfields.

LEAMINGTON. Pop. 26,888.

Beattie, James, 25, Dale Street.  
 Brassington, William Richard, 11, Charlotte Street. [Spa.  
 Curle, Arthur Lister,\* —L.D.S. Eng., 30, The Parade, Leamington  
 Hillier, Henry Norman, —L.D.S. Eng., 19, Waterloo Place, Leaming-  
 ton Spa.  
 Hoffmann, Augustus William Wistinghausen,\* —L.D.S., M.R.C.S.  
 Eng., L.R.C.P. Lond., 30, The Parade.  
 Hordern, Samuel Henry Pitt, —L.D.S.I., 17, The Parade.  
 Hudson, Frank Henry, 5, The Parade.  
 Jepson, Alfred, 33, Warwick Street.  
 Jepson, Harold Ernest, —L.D.S. Eng., 33, Warwick Street.  
 Sansom, Henry, 39, Warwick Street.  
 Thistlewood, Edwin, —L.D.S.I., 10, Upper Parade.  
 Thorman, Frederick James, —L.D.S. Eng., 19, Waterloo Place.  
 Watt, John Ross, 13, Euston Place.  
 Whateley, James Clemencon, 17, Waterloo Place.

LEEDS. Pop. 428,953.

Allinson, Henry, 8, Carlton Row, Holbeck.  
 Anderson, Robert, 29, Mosley Street, Barnoldswick, near Leeds.  
 Armin, William, —L.D.S.I., 24, Victoria Road.  
 Armitage, Nathaniel, 114, Tong Road, Arinley.

- Atkinson, Thomas, 23, Guildford Street.  
*Birch, John Charters*, —L.D.S.I., 2, Brunswick Place, North Street.  
*Brunton, George*,\* 16, Blenheim Terrace, Woodhouse Lane.  
*Carter John Henry*, —L.D.S.I., 26, Park Square.  
*Carter, Thomas Scales*,\* —L.D.S. Eng., 26, Park Square.  
 Crawshaw, Henry, 16, Stratton Street.  
 Crosby, Edward, 185, Roundhay Road.  
 Duckett, Thomas Henry, 16, Cobourg Street.  
 Fitton, Joseph, 10, Beckett Street, Burmantofts.  
*Greaves, James Edward*, —L.D.S.I., 36, Hyde Park Road.  
 Halbard, P. F., 6, Warwick Terrace, Caledonian Road.  
 Hallam, T., —L.D.S. Eng., Hill Crest, Harehills Lane, Roundhay.  
 Hayton, Peter Bamlett, Bramley.  
*Headridge, Thomas*, 45, Belgrave Street.  
*Hey, Stephen Daniel*, —L.D.S. Eng., 10, Clarendon Road.  
*Hordern, Joseph Brookhouse*, —L.D.S. Eng., 26, Park Square.  
 Kemplay, Henry Collinwood, 89, Skinner Lane.  
 Knowles, Henry, 13, Wintown Street, North Street.  
 Knowles, William Edward, Birstall. [Crescent.  
*Leigh, Percival Tookey*,\* —L.D.S. Eng. and Glas., 6, Portland  
 Mahoney, Charles, 3A, New Briggate. [Place.  
*Margetson, William Edward*\* —M.R.C.S., L.D.S. Eng., 22, Park  
*Marston, Walter*, —L.D.S. Eng., 12A, Clarendon Road.  
 Milestone, Robert, 59, East Street.  
 Mitchell, William, 111, Roundhay Road.  
*Morley, Vincent Robert*, 4, Hanover Street, Park Lane.  
*Naylor, J. C.*, Woodhouse Square.  
*Nicol, James Main*,† —L.D.S. Edin., 12A, Clarendon Road.  
*Nicol, William Henderson*, —L.D.S. Eng., 22, De Grey Road.  
*Perkin, Henry*, —L.D.S. Edin., 86, Beeston Hill.  
*Ramsden, Henry Noble*, 72, New Briggate.  
 Rhodes, Samuel Gibson, 12, Park Street. [bury Road.  
*Riddett, Cecil George*, —L.D.S. Eng., 2, Middleton Crescent, Dews-  
 Ross, George Laurie, 108, North Street.  
*Saville, David*, —L.D.S.I., 1, Spencer Place, Roundhay Road.  
*Sherburn, Frederick*, —L.D.S.I., 153, Woodhouse Lane.  
 Simpson, George William, 15, Market Street, Briggate.  
 Smith, Thomas, 20, De Grey Terrace.  
*Stubbs, Edwin*, 4, Blenheim Terrace, Woodhouse Lane.  
*Taylor, James*, —L.D.S.I. Glas. and Edin., Glendene, Park Road,  
 Roundhay.  
 Taylor, Joseph, 11, Leeds Bridge.  
*Wyles, Henry*, —L.D.S. Edin., 24, Blenheim Terrace. [Lane.  
*Young, Ralph Littlewood*, —L.D.S. Eng., 3, Hillary Place, Woodhouse

LEEK. Pop. 15,480.

- Hartley, William Henry, 10, Market Place.  
 Sumerling, Arthur, —L.D.S.I., 66, St. Edward Street.  
*Sumerling, Bertram James*, —L.D.S. Eng., 66, St. Edward Street.

LEICESTER. Pop. 211,574.

- Bagster, Charles Henry*, St. Kilda House, London Road.  
*Barber, Charles* Palethorpe, 62, Humberstone Gate.  
*Bristow, Herbert*, —L.D.S. Eng., 68, London Road.  
*Burden, Oliver*, Ratcliffe Road.  
*Butler, James Arthur*, Town Hall Lane.  
*Clarkson, Kenneth Cliff*, —L.D.S. Edin.  
*Cooper, Albert*, —L.D.S. Eng., 17, Halford Street.  
*Cotching, Charles Jubb*, St. Saviour's Road.  
*Craig, John Thomas*,\* —L.D.S. Edin., 21, Belvoir Street.  
*Craig, Robert Walker*, —L.D.S. Eng., 21, Belvoir Street.  
*Dean, Charles Hemmings*, 1, Nelson Street, London Road.  
*Duplock, Charles Masters*, 23, Tichborne Street.  
*Field, Joseph William*, Bank Buildings, 54, Gallowtree Gate.  
*Freeland, Alonzo Joseph*, Kibworth Beauchamp.  
*Grant, Walter Daniel*, Roxburgh House, New Walk.  
*Howitt, Harry*, 140, Cavendish Road, Aylestone Park.  
*Kelly, John George*, Midland Chambers, Gallowtree Gate.  
*Lankester, Francis John*, —L.D.S. Eng., 41, Belvoir Street.  
*Lloyd, Rew Ashkenaz*, 48, Gallowtree Gate.  
*McAlpin, John Gerdes*, —L.D.S. Eng., 1, De Montfort Street, London Road.  
*McCall, John Henry*,\* —L.D.S. Eng., 13, Belvoir Street.  
*Marston, Robert*, Palissy House, Narborough Road.  
*Mathison, Thomas*, —L.D.S. Edin., c/o Messrs. Rose and Cooper, 17, Halford Street.  
*Rose, Edward Percy*, —L.D.S. Edin., 15, Halford Street.  
*Rowlett, Alfred Ernest*, —L.D.S. Eng., 67, London Road.  
*Sharp, John Thomas*, 7, Doncaster Road, Melton Road, Belgrave.  
*Thompson, Alexander Douglas*, Charnwood Road, Sheepshed.  
*Vice, William Armston*,\* —L.D.S. Edin., M.B., D.D.S. Phil., 5, Belvoir Street.  
*Woolley, George John Blennerhassett*, Brackendale, Stoneygate.

LEIGH, (LANCS.). Pop. 28,700

- Lutwisle, Edward*, —L.D.S. Eng., 84, Railway Road.

LEITH. Pop. 69,695.

- Carr, George*.  
*Hall, Frederick*, —L.D.S. Edin., 2, Hermitage Place.  
*Mouat, Andrew Walker*, —L.D.S. Edin., 65, Ferry Road  
*Oswald, Hugh Kirkwood*, —L.D.S. Edin., 9, Dudley Gardens.  
*Watson, George Hills*, —L.D.S. Edin., 110 Ferry Road.

LENZIE. Pop. 2,000.

- MacIlraith, N. W.*, —L.D.S. Edin., Woodilee Asylum.

LEOMINSTER. Pop. 5,826.

- Buckham, John*, 35, High Street.  
*Hudson, Alfred George*, —L.D.S.I., 32, South Street.



## LERWICK. Pop. 4,000.

Stout, Charles Brown, Medical Hall.

## LETTERKENNY. Pop. 2,500.

Moore, William Tedlie, Medical Hall.

## LEWES. Pop. 11,250.

Fuller, Montague, 196, High Street.

Martin, William Thomas, 16, Cliffe High Street.

Wyborn, Edward, 178, High Street.

## LEYTON. Pop. 98,899. [See London.]

Holm, William.

Hooper, Robert, 245, Church Road.

## LEYTONSTONE. Pop. 433,434. [See London.]

Dinnis, Alfred, —L.D.S. Eng., 48, Chadwick Road.

Matthews, John Henry, 6, The Grove, High Street.

Tucker, Charles Ernest.

## LICHFIELD. Pop. 7,902.

*Coleridge-Roberts, Walter Reginald*, —L.D.S. Glas., Tamworth House.

## LIMERICK. Pop. 37,070.

Coogan, Joseph Vincent, —L.D.S. Edin., 11, Upper Mallow Street.

*Hare, George F.*, —L.D.S. Eng., 2, Pery Square.

Manders, George, 36, George Street.

O'Driscoll, Denis St. John, —L.D.S. Edin., 11, Upper Mall Street.

*O'Meehan, Patrick*,\* —L.D.S.I., 4, Upper Mallow Street.

## LIMPSFIELD. Pop. 911.

Ravenscroft, Percy, —L.D.S. Glas., Broom Hill, Limpsfield.

## LINCOLN. Pop. 47,072.

Baker, George, 22, Newland.

Brookhouse, Charles Scott, —L.D.S. Edin., 5, Castle Hill.

Mackeown, William Joseph Ferguson, —L.D.S. Edin., 28, Tentercroft Street, St. Mark's.

Rumble, George, Thorndale Villa, Hamilton Road.

Turner, Albert Edward, 20, Portland Place, St. Mary's Street.

Tuxford, James Edward, —L.D.S. Eng., Club House, Castle Hill.

Uttley, Edgar Preston, —L.D.S. Eng., St. Mark's, 157, High Street.

White, Thomas Harry, —L.D.S. Eng., 15, Silver Street.

Winter, John, 1, Silver Street.

## LISCARD (CHESHIRE). Pop. 16,300.

Bowler, Walter, —L.D.S. Eng., 14, Newland Drive, Wallasey Road.

Earp, Samuel, 11, Grosvenor Street.

Harrison, Arthur Edward, —L.D.S. Eng., Ardath, Sea Bank Road.

Hinton, William, 42, Sea Bank Road.

Parle, Frederick A., —L.D.S. Edin., 38, Seabank Road.

LISKEARD. Pop. 41,011.

*Lyne, William Henry*, —L.D.S. Eng., Trion House, Deane Street.

LITTLEHAMPTON. Pop. 7,363.

Smart, Charles Frederick, 52, High Street. [Road.

Taylor, James,|| —L.D.S.I. Glas. and Edin., Eastlea, St. Catherine's

*Taylor, Lionel*, —L.D.S. Eng., 12, St. Catherine's Road.

LITTLEPORT. Pop. 3,055.

Fitch, William Cross.

LIVERPOOL. Pop. 684,947.

Alder, Charles, —L.D.S.I., 36, Rodney, Street.

Alder, James Urquhart,† —L.D.S. Eng., 36, Rodney Street.

Alexander, George.

Alexander, John, Junr., —L.D.S. Edin., Jesmond Dene, Crossley Road, N. Waterloo.

*Alexander, Matthew*,† —L.D.S.I., 14, Rodney Street.

*Allenby, Ernest Waldegrave*,† —L.D.S. Eng., 155, Prescott Road and 87, Lord Street.

*Anderson, Jonathan Harrison*,† —L.D.S. Eng., 15, Daulby Street.

*Anderson, L. B.*,† —L.D.S. Eng., 75, Rodney Street.

*Aubrey, F. E.*,† —L.D.S. Eng., 33, Rodney Street.

Austin, Thomas Francis, 160, Islington.

Banner, Edward Richard, 36, Old Haymarket.

Bark, Annie Costine, —L.D.S. Glas., 54, Rodney Street.

*Barlow, Thomas Hinde*,† —L.D.S. Eng., 30, Rodney Street.

Barrow, James Horsfield, 39, Litherland Park.

Bate, Edwin, 73, Upper Parliament Street.

*Bates, Reginald Henry*,† —L.D.S. Eng., 60, Rodney Street.

*Black, Arthur*,† —L.D.S. Eng., 33, Rodney Street.

Bleasdale, James, 49, Durning Road.

*Blight, Frederick John*,† —L.D.S. Eng., 78, Rodney Street.

Bowler, Walter, —L.D.S. Eng., 39, Amphill Road, Aigburth Road, Sefton Park. [Street.

*Bradburn, Frederick James*,† —L.D.S. Eng., 142, Upper Parliament

Brook, James Edward, 71, London Road.

Brooker, William Gorton, 168, Upper Warwick Street.

*Burroughs, Joseph Henry*,† —L.D.S. Eng., 41, Rodney Street.

Byrne, Thomas Wafer,† —L.D.S. Eng., L.D.S. Glas., 2, Princes Road.

Caley, John Clague, 453, Stanley Road.

Capon, Benjamin, —L.D.S. Eng., 7, Rodney Street.

*Capon, Robert Maw*,† —L.D.S. Glas., 49A, Rodney Street.

Capper, Arthur, —L.D.S. Edin, Hayton Park, near Liverpool.

*Carson, Frederick William*,† 114, Bold Street.

Chambers, Pearson, 266, Smithdown Lane. [Birkdale.

Charlick, Alfred Braithwaite, —L.D.S. Eng., 46, Liverpool Road,

Cleaver, Alfred Henry, —L.D.S. Glas., 22, Kimberley Drive, Great Crosby.

Cole, William Henry.

Cook, William Edmund, —L.D.S. Eng., 131, Queen's Road, Everton.

*Councell, Edward Arthur*,‡ —L.D.S. Eng., 49, Rodney Street.

Cranston, Henry Selby, —L.D.S. Eng., 52, Amphill Road.

*Crooke, W. J.*, —L.D.S. Glas., 25, Catherine Street.

Dearle, Samuel George Harrison, 49, Stafford Street.

Dennis, James Hollis, —L.D.S. Eng., 9, Canning Street.

Dennis, William Herbert, —L.D.S. Edin., 9, Canning Street.

De Raymond, Edward Corbett Ponsford, —L.D.S.I., 56, Rodney Street.

Dopson, Charles Burl, —L.D.S.I., 3, Hyde Road, Waterloo.

*Dunlop, James Nairn*,‡ —L.D.S. Eng., 3, Mulgrave Street.

*Dunn, Alfred Sholl*,‡ 17, Rodney Street.

Durrance, Frederick Joshua, 252, Upper Parliament Street.

*Edwards, Richard*,‡ —L.D.S. Eng., M.R.C.S., 10, Oxford Street.

Fidler, John, 183, Mill Street.

Follows, Albert Edward, 7, Commutation Row.

Follows, William, 7, Commutation Row.

*Frank, George Henry*,‡ —L.D.S. Eng., 110, Edge Lane.

Gabriel, Henry, 24, Alexandra Terrace, Princes Road.

*Gaskell, William Frankland*,‡ 75, Mount Pleasant.

Gass, John Wilson, 19, Hope Street.

*Gilmour, William Henry*,‡ —L.D.S. Eng., 47, Rodney Street.

Girvan, John, 289, Scotland Road.

Hanson, Christopher, 4, Aigburth Road, Cressington.

Harriman, Edwin, 138, Brownlow Hill.

Hay, Thomas Alex., 79, High Street, Wavertree.

Henderson, John, 57, Pembroke Place.

Hill, Charles Townsend, 257, County Road, Walton.

Hocken, Joshua, 31, Oldhall Street.

Huggins, Geo. Bond, —L.D.S. Eng., 50, South Road, Waterloo.

Hughes, Thomas Ignatius James, 427, Mill Street.

Jones, Ceinwen Saron (Miss), —L.D.S. Glas., 54, Rodney Street.

Jones, Charles Henry, 189, Breck Road, Everton.

Jones, John, 5, Strand Street.

Jones, William, 13, Parker Road, Church Street.

Jones, William, 69, Church Street.

Jordan, Charles, Sen., 80, Bold Street.

Jordan, Charles, Jun.

Jordan, Eugene, 48, Hardwick Street.

Joseph, Neild, 21, Great Homer Street.

Kirkpatrick, Andrew, —L.D.S.I., 8, Oxford Chambers, 71, Lord Street.

Kirkpatrick, Samuel,‡ 15, Morningson Terrace, Upper Duke Street.

Kirkus, Robert Waudby, 61, Marsh Lane, Bootle.

Kolesar, Frank, —L.D.S. Edin., 39, Mount Pleasant.

Ladyman, Samuel.

Lamb, Ralph, —L.D.S. Eng., 51A, Rodney Street.

Livesey, John William, 179, Westminster Road, Kirkdale.

*Lloyd, George Albert*,‡ —L.D.S. Edin., 41, Hartington Road.

*Lloyd, John Wesley*,‡ 30, Mount Pleasant.

- Lloyd, John Wesley, Jun.*, ‡ —L.D.S. Edin., M.R.C.S. Eng.,  
L.R.C.P., 1A, Rodney Street.
- Lloyd, Thomas Edwin*, 14, St. Mary's Road, Garston.
- Lloyd, Thomas Isaac*, —L.D.S.I., 73, Mount Pleasant.
- Low, William Joseph*, ‡ —L.D.S. Edin., 110, Sheil Road.
- Mace, Harry Edward*, —L.D.S. Eng., 98, Huskisson Street.
- Mapplebeck, Willie*, ‡ —L.D.S.I., 34, Rodney Street.
- Matthews, William*, ‡ —L.D.S. Eng., 60, Rodney Street.
- Mountford, Edwin Henry*, ‡ —L.D.S. Eng., 11, Rodney Street.
- Murphy, Basil Newman*, —L.D.S. Eng., Spetchley, The Park,  
Waterloo.
- Narramore, Edward Giles*, ‡ —L.D.S. Eng., 48, Canning Street.
- Newton, John Newton Peill*, —L.D.S. Eng., 44, Rodney Street.
- Osborn, Edwin Collett*, 1, Rodney Street.
- Osborn, Lewis James*, ‡ —L.D.S. Eng., 1 Rodney Street.
- Pain, Henry Alfred*, 227, Upper Parliament Street.
- Parsons, Daniel Walter*, ‡ —L.D.S. Edin., 4, Oxford Street.
- Patridge, William Ford*, 97, Admiral Street, Prince's Park.
- Pearce, John*, 75, Barlow Lane, Walton.
- Peet, Henry*, 97, Mount Pleasant. [33, Rodney Street.
- Phillips, Edward James Montagu*, ‡ —L.D.S. Eng., M.R.C.S., L.R.C.P.,
- Piaget, William John*, —L.D.S. Eng., 76, Merton Road, Bootle.
- Povey, Arthur Edwards*, 2, Norwood Grove, West Derby Road.
- Prenslan, Moses Abraham*, 83, Great George Street.
- Quinby, Arthur Henry*, ‡ —L.D.S. Eng., 21, Rodney Street.
- Quinby, Henry Clay*, ‡ —L.D.S.I., 21, Rodney Street.
- Quinby, Melville Gershom Cox*, \* 21, Rodney Street.
- Raymond, James Martin*, ‡ —L.D.S. Eng., 4, Amberley Street.
- Roberts, John Pryse*, —L.D.S. Edin., 71, Mount Pleasant.
- Roberts, Thomas Pryse*, ‡ 81, Bedford Road, Bootle.
- Robinson, Arthur Bernard*, —L.D.S. Eng., 29, Seymour Street.
- Robinson, Leopold Holiday*, 33, Norton Street.
- Robinson, Robert Percy*, —L.D.S. Eng., 3, Bedford Street, N.
- Rose, Frederick*, ‡ —L.D.S. Eng., 1, Brunswick Street.
- Royston, Jonathan*, \* ‡ —L.D.S. Eng., 60, Rodney Street.
- Simpson, David*, 83, Belgrave Road, Aigburth Road.
- Smith, Bernard*, ‡ —L.D.S. Eng. and Edin., 33, Canning Street.
- Smith, John*, 1, Robson Street, Everton.
- Smith, Robert George*, 5, Earle Road.
- Stewart, Charles Tait*, 87, Mount Pleasant.
- Stoddart, Joseph*, 70, Great Crosshall Street.
- Stuck, John Frederick*, —L.D.S. Eng., 95, Mount Pleasant.
- Taylor, Sidney Edgerly*, ‡ 16, Oxford Street. [Road.
- Thynne, Frederick William Henry*, 4, Beaconsfield Street, Princes
- Tindal, John*, ‡ —L.D.S. Eng., 60, Rodney Street.
- Townson, William*, 2, Russell Street.
- Tyrer, Joseph*.
- Veitch, William MacGregor*, —L.D.S. Eng., 112, Princes Road.
- Volpé, Raffaele*, 58, Renshaw Street.

Webb, Cecil Frederic, 2, Brougham Terrace, West Derby Road.

Webb, George Henry, 2, Brougham Terrace.

Westerton, Samuel Arthur, —L.D.S. Edin., 189, Stanley Road, Bootle

Westworth, Herbert, 52, Prescott Street.

White, Thomas, 165, Stanley Road.

Widdowson, T., ‡ —L.D.S. Eng., 211, Edge Lane.

Williams, George Arthur, ‡ —D.D.M. Harv., 80, Rodney Street.

Wilson, George Braidwood, ‡ —L.D.S. Edin., 4, St. Catherine's Road  
Bootle.

*Woods, Edward Cuthbert*, ‡ —L.D.S. Eng., 76, Mount Pleasant.

*Woods, Joseph Ainsworth*, ‡ —L.D.S. Eng., 76, Mount Pleasant.

Woods, William Nicholls Lindley, 82, Smith Street, Kirkdale.

Yeats, Thomas Flasby, 303, Breck Road.

#### LIVERSEDGE.

Stevenson, John Findlay, —L.R.C.P., L.R.C.S.E., Riffa House.

#### LLANDUDNO. Pop. 9,307.

*Bonnalie, H. E.*, —L.D.S. Eng., Mingdon, North Parade.

Bowkley, Alfred Harold, —L.D.S. Eng., The Firs, Harcourt Road.

Harding, George Herbert, —L.D.S. Eng., 101, Mostyn Street.

Penney, William Sealy, East Lynne, Penrhyn Crescent. [Street.

Roberts, George Bulfield, —L.D.S., Edin., Buckley House, 68, Mostyn

Sheldon, Harry William, —L.D.S. Glas., 8, South Parade.

*Walker, Frederick Vincent*, —L.D.S. Eng. and Glas., 9, South Parade.

#### LLANELLY. Pop. 23,935.

Evans, Gwilym, Westfa.

Fitch, William Cross.

*Jones, John Wesley*, New Road.

Roberts, Robert Morris, Greenfield.

Wade, John, 34, Stepney Street.

#### LLANIDLOES. Pop. 3,875.

Rees, David, Long Bridge Street.

#### LOCHEE. Pop. 3,000.

Thomson, John Hutcheson, 102, High Street.

#### LOCHGELLY. Pop. 4,500.

Dick, John Johnston, 43, Bank Street.

#### LONDON, N.

Andrew, Percy Nathaniel, —L.D.S. Eng., 26, Douglas Road, Canon-  
bury.

*Armitage, F. A.*, —L.D.S. Eng., 30, Alexandra Villas, Finsbury Park.

Atkins, Ernest.

*Balding, Edmund*, 9, Pemberton Gardens, Upper Holloway.

LONDON, N.

- Balding, Edmund, Jun.\** —L.D.S. Eng., 9, Pemberton Gardens, Upper Holloway.
- Bartlett, Edward Charles, —L.D.S. Edin., 26, Upper Street, Islington.
- Bird, George, 31, Weston Park, The Broadway, Crouch End.
- Bolton, Joseph Hook, Chase Side, Southgate.
- Brickwell, Edward Thornton, 219, Tufnell Park Road, Holloway.
- Brown, Thomas Chodwick, 69, Upper Street, Islington.
- Budden, Tice Fisher,\* —M.D., B.C., M.R.C.S., L.R.C.P., L.D.S. Eng., —52, Coolhurst Road, Crouch End.
- Canton Henry, 130, East Road, City Road.
- Chesterman, James, 147, Highbury Hill.
- Clark, John Adolphus, 57, Weston Park, Crouch End.
- Clements, Edward Henry*, 383, Holloway Road.
- Clements, George Edward, 336, Holloway Road.
- Cocker, Albert Benjamin, —L.D.S. Eng., 10, Palmer's Green Villas, Green Lanes, Palmer's Green.
- Cocker, Robert Benjamin, 97, Newington Green Road.
- Coish, Henry Charles, 85, Burgoyne Road, Harringay Park.
- Coish, Henry John, 85, Burgoyne Road, Harringay Park.
- Corfe, Ernest William,\** —L.D.S. Eng., 15, Queen's Avenue, Muswell Hill.
- Donston, W.*, —L.D.S.I., The Green, Tottenham.
- Drake, Harry Francis, 742, Criterion Buildings, Upper Holloway.
- Eden, Charles, 48, Stamford Hill.
- Edwards, James, 142, High Street, Barnet.
- Forster, George Graham, —L.D.S. Eng., 18, Highbury Place.
- Garman, Cornelius Edwin, 278, Roman Road, North Bow.
- Gillies, Robert Gray, —L.D.S. Eng., 183, Mount View Road, Stroud Green.
- Greatrex, Henry, 26, Struss Villas, Market Place, East Finchley.
- Greenfield, George Sidney, 9, Tynemouth Road, South Tottenham.
- Grey, Ernest Howard, 261, Essex Road, Islington.
- Grey, Philippa Haynes, 261, Essex Road, Islington.
- Gwinnell, Edmund, 38, Cavendish Road, Harringay.
- Hall, Frederick George, —L.D.S. Eng., 417, Holloway Road.
- Handley, Charles, 154, High Street, Stoke Newington.
- Handley, Charles Walter Croft,\** —L.D.S. Glas., The Elms, High Street, Stoke Newington.
- Handley, Eva Mary, —L.D.S. Eng., 154, Stoke Newington Road.
- Hankey, Stanley James*, —L.D.S. Eng., 130, Green Lanes, Stoke Newington.
- Harris, Francis Douglas,\* 2, Lewisham Road, Highgate Road.
- Harrison, Richard*, —L.D.S. Eng., 245, Camden Road.
- Hedge, John James, 13, Quernmore Road, Stroud Green.
- Heydon, Arthur George, —L.D.S. Eng., Redbourne Cottage, Church End, Finchley.
- Holding, John, 169, Hemingford Road, Barnsbury.



## LONDON, N.

- Horsey, George Mather*, —L.D.S.I., 1, Compton Terrace, Highbury.  
*Hugo, Maurice Emanuel Victor*, —L.D.S.I., 10, Cumberland Terrace, Seven Sisters Road, Finsbury Park.  
*Humby, Henry Robinson*, —L.D.S. Eng., 28, Muswell Rise Muswell Hill Road.  
*Husbands, Frank Alfred*, —L.D.S. Eng., 6, Linthorpe Road, Stamford Hill.  
*Hutson, Edward*, —L.D.S. Eng., 99, Evering Road, Stoke Newington.  
*Jago, Bernard Anstis*, St. Neots, Francis Avenue, Ilford.  
*Jeffery, Louis*,\* —L.D.S. Eng., 1, Newton Villas, Seven Sisters Road.  
*Jessop, Charles Ferdinand*, —L.D.S. Eng., 7, Coleridge Road, Crouch End.  
*Keele, Stephen*,\*— L.D.S. Eng., 8, Highbury Place.  
*Lance, William Nathaniel George*, 207, Copenhagen Street, Islington.  
*Lane, William*, 1, Poet's Road, Highbury New Park.  
*Limbirt, Edward Harvey*, —L.D.S.I., 417, Holloway Road.  
*Love, Hugh*, —L.D.S. Eng., 170, Seven Sisters Road.  
*McLennan, Wallace*, 25, Fortnam Road, Upper Holloway.  
*Mantell, James*, Belmont House, High Street, Wood Green.  
*Marcham, James*, 86, Langham Road, West Green, Tottenham.  
*Meacher, John Charles*, 61, Stroud Green Road.  
*Moore, Edward*, 82, Station Road, New Southgate.  
*Moore, Thomas Henry Gee*, —L.D.S.I., 75, Church Street, Stoke Newington.  
*Morgan, John Wesley*, 249, Seven Sisters Road.  
*Morrell, Thomas*, 1, South Street, New North Road, Islington.  
*Mullord, Charles*, —L.D.S. Eng., 8, Weston Park, Broadway, Crouch End.  
*Murray, Lilian*, —L.D.S. Edin., 69, Hornsey Rise.  
*Nockolds, William Stephen*, Medina Lodge, Ballard's Lane, North Finchley.  
*Oates, John Arnold*, —L.D.S. Eng., The Parsonage, Dale Grove, North Finchley.  
*Ogden, Frank Douglas*, 1, Compton Terrace.  
*Parker, Henry Jacques*, 87, St. Paul's Road, Highbury.  
*Parry, George*, 68, St. Ann's Road, Stamford Hill.  
*Patterson, William Todd*, —L.D.S. Eng., 112, High Street, Kingsland.  
*Pattinson, Charles Augustine*, —L.D.S. Eng., 32, St. Augustine Villas, Archway Road, Highgate.  
*Penrose, Arthur Petch*, —L.D.S.I. and Glas., 33, Compton Terrace, Highbury.  
*Perkins, Harold Goodwin*, —L.D.S. Eng., 1, Newton Villas, Finsbury Park.  
*Plenderleith, William*, 126, Stroud Green Road, Finsbury Park.  
*Plunkett, Joseph Charles*, 173, Stroud Green Road, Finsbury Park.

LONDON, N.

- Pring, Horace Reginald*, —M.R.C.S., L.R.C.P., L.D.S. Eng., 1, Highbury Place.
- Reboul, Anthony Percy, —L.D.S. Eng., St. George's Villa, Ballard's Lane, Finchley. [Green.]
- Richardson, Thomas William, Clarence House, Clarence Road, Wood
- Robinson, Sydney William, —L.D.S. Eng., Glenholme, 31, High Road, Wood Green.
- Rogers, Thomas Abraham, 254, Caledonian Road.
- Shrimpton, Stanley*, 4, Cumberland Terrace, Finsbury Park.
- Solman, Seward William, 173, Stroud Green Road, Finsbury Park.
- Sprawson Evelyn Charles, —L.D.S. Eng., Belle Vue, East Finchley.
- Sprawson, Francis Edgar, —L.D.S. Eng., Belle Vue, East Finchley.
- Stevens, David Sydney, —L.D.S. Eng., 79, Stamford Hill.
- Stevens, Herbert John, —L.D.S. Eng., 79, Stamford Hill.
- Stocken, James,\* —L.D.S. Eng., 11, Southwood Mansions, Highgate.
- Talbot, Francis, —L.D.S. Eng., 86, Cromwell Avenue, Highgate.
- Tasker, John George, 30, Junction Road, Upper Holloway.
- Taylor, William, 31, Parkhurst Road, Holloway.
- Thurgood, Alexander, 255, Essex Road, Islington. [Highbury.]
- Tracey, Duncan Powerscourt, —L.D.S. Eng., 88, Grosvenor Road,
- Walter, Ernest,\* —L.D.S. Eng., 41, Hill Marten Road, Camden Road.
- Walton, William, 2, St. Paul's Road, Islington.
- Warr, John Henry, —L.D.S.I., 2, Copenhagen Street, Islington.
- Warr, William, 136, Hemingford Road, Barnsbury.
- Warrell, Edmund, 202, Caledonian Road.
- Watson, David, —L.D.S. Eng., 5, St. James's Mansions, Muswell Hill.
- Watts, Alexander, 387, Holloway Road. [Newington.]
- Webb, Humfrey John, —L.D.S. Eng., 166, Church Street, Stoke
- White, Edward Arthur, —L.D.S. Edin., M.B., M.D., L.S.A., 1, Highbury Place, Islington.
- Yarrow, George Eugene, 26, Duncan Terrace, Islington.

LONDON, N.E.

- Barnard, Alfred P., 309, Hackney Road.
- Beardwell, Frederick William, 288, Cambridge Road, Hackney.
- Berdoe, Edward Walter*, 511, Hackney Road, N.E.
- Eagle, John, 30, Church Row, Bethnal Green Road.
- Edmonds, John, 78, High Street, Kingsland.
- Fingard, John, 278, Kingsland Road.
- Nicholls, Theophilus, 99, Wick Road, South Hackney.
- Outred, Charles Deane, —L.D.S. Eng., 30, Cassland Road, South Hackney.
- Outred, Thomas Benjamin, —L.D.S.I., 30, Cassland Road, South Hackney.
- Peacock, Walter, 153, Sandringham Road, Dalston.
- Pentney, James Chapman, 98, Queen's Road, Dalston.
- Poyton, Herbert, —L.D.S. Eng., 49, St. Thomas's Road, South Hackney.

## LONDON, N.W.

*Acret, Charles Henry James*, —L.D.S. Edin., 43, Rosslyn Hill, Hampstead.

Alexander, Charles, 9, Ravenshaw Street, West Hampstead.

Arnold, Charles, 18, Albany Street, Regent's Park.

Bendall, Henry, 3, Priory Park Road, High Road, Kilburn.

Blount, George, 51A, High Street, Camden Town.

Boulton, Arthur George, 14, Frognaal, South Hampstead.

Braun, Henry Charles, 1, Kilburn Square.

*Briault, Ernest Henry Lewis*,\* —L.D.S. Eng., 145, Finchley Road.

Bromley, Frank Charles, —L.D.S. Eng., Guildford House, Hendon.

Brown, Ernest Chodwick, —L.D.S. Eng., 31, Marlborough Mansions, Cannon Hill, Hampstead.

Burn, Henry, 131, Chevening Road, Queen's Park.

Burns, Andrew, —L.D.S. Edin., 100, Camden Street.

Burton, Charles James, —L.D.S. Eng., 20, Fortune Green Road, West Hampstead.

Clarence, Thomas Herbert,\* —L.D.S. Eng., 90, Gower Street, Euston Road.

*Cohen, Isaac*, —L.D.S. Eng., 20, Craven Park Road, Harlesden.

Coish, Frederick John, Jun., 12, Chalk Farm Road.

Crocker, Henry Zacharia, 114, Mansfield Road, Gospel Oak.

Douthwaite, Benjamin John, —L.D.S. Edin., 33, Rochester Square, Camden Town.

Duncan, Frank Hubert, —L.D.S. Eng., 41, Brondesbury Road, Kilburn.

Evans, David Robert, West Court, Church End, Willesden.

*Fisk, Edgar Charles*, —L.D.S. Eng., 181, High Road, Kilburn.

*Fitzgerald, John*, —L.D.S., 19, Blenheim Road, St. John's Wood.

Fleming, Frederick William, —D.M.D. Harv., 6, Streatley Road, Brondesbury.

Fletcher, Frederick William, 6, Streatley Road, Brondesbury.

*Fripp, John Trude*, —L.D.S.I. and Edin., 20, Station Road, Willesden Junction.

Gabriel, Solomon, 34, Plympton Road, Brondesbury.

Gaubert, Stephen, Wembley-by-Harrow.

Gingell, George, —L.D.S. Eng., 20, Park Road, Upper Baker Street.

Goldfinch, George, 7, Church Walk, Hendon.

Grant, Charles H. Russell, —L.D.S. Eng., 131, Dartmouth Road, Brondesbury.

Gwyther, Henry Milton, —L.D.S. Eng., 1, Anson Parade, Cricklewood.

Halliday, Harold David, —L.D.S. Eng., 7, Stanhope Terrace, Gloucester Gate, Regent's Park.

Harding, Milward,\* 23, Park Square East.

*Harding, Thomas Henry Gosling*,\* —L.D.S. Eng., 23, Park Square East.

LONDON, N.W.

- Harrison, Richard Malcolm Crowther*, —L.D.S. Eng., 2, Avenue Mansions, Finchley Road.
- Harsant, Frank Arnold*,\* —L.D.S. Eng., 23, Park Square East, Regent's Park.
- Hart, Arthur Leopold, 105, Fortress Road, Kentish Town.
- Hartridge, James Hills, Holmwood, Hendon.
- Hitchcock, Samuel Conder, 119, Abbey Road, St. John's Wood.
- Hopson, Montague F., —L.D.S. Eng., 30, Thurlow Road, Rosslyn Hill, Hampstead.
- Idris, Thomas Howell Williams, 110, Pratt Street, Camden Town.
- Jamieson, Alexander, 134, Castellan Mansions, Sutherland Avenue.
- Jamieson, James, 64, Camden Road.
- Jones, Henry, 13, Cambridge Avenue, Kilburn.
- Jones, William, —L.D.S. Eng. and Edin., 9, Colosseum Terrace, Regent's Park.
- Jordan, George Henry, St. Clyth, Church Street, Burnham-on-Crouch.
- Joseph, Edgar, —L.D.S. Eng., 42, Brondesbury Road.
- Knaggs, Sydney Angelo*, —L.D.S. Eng., 151, Finchley Road, Hampstead.
- Knowles, Charles Heygate,\* —L.D.S. Eng., 13, Lyndhurst Road, Hampstead.
- Leatherby, William Linthall, —L.D.S. Eng., 40, Hill Drop Road, N.
- Levason, Montague Alex., 3, Charteris Road, Glengall Road, Kilburn.
- Lovitt, Robert James, —L.D.S. Eng., 219, Albany Street, Gloucester Gate.
- May, Edward Percy, —M.R.C.S. Eng., 15, Endsleigh Gardens, Euston Square.
- May, William*,\* —L.D.S. Eng., 24, Quex Road, Kilburn.
- Messenger, Henry Williams*,\* —L.D.S.I., 47, Rosslyn Hill, Hampstead.
- Millett, Robert Percy, —L.D.S. Glas., 22, Oakley Square.
- Morgan, Thomas William, 54, Callcott Road, Brondesbury.
- Mosely, Simeon, 67, Greencroft Gardens, West Hampstead.
- Murray, Harold, —L.D.S. Eng., c/o M. F. Hopson, Esq., Grove House, 16, Rosslyn Hill, and 2, Station Chambers, Haslemere.
- Nathan, Henry, 92, High Road, Kilburn.
- Newton, Thornton Albert C., 77, Carlton Vale, Kilburn.
- Norris, John*, —L.D.S. Eng., 111, Walm Lane, Willesden Green.
- Parker, William Henry, Murray Road, Northwood, Middlesex.
- Patterson, James Mountain*, 132, Haverstock Hill. [bury.]
- Pavitt, Percy George, —L.D.S. Eng., 178, Willesden Lane, Brondes-
- Pidgeon, Walter Herbert*, —L.D.S. Eng., 151, Finchley Road, South Hampstead.
- Pinto, Phineas Abraham*, —L.D.S. Eng., 8, Albany Street, Regent's Park.
- Pond, George Frank, 19, Church Terrace, Church End, Hendon.
- Pretty, Edward, 73, Albany Street, Regent's Park.

## LONDON, N.W.

- Read, Charles, — L.D.S. Eng., 12, Hillfield Road, Hampstead.  
 Reeve, Alfred,\* — L.D.S. Eng., 6, Park Houses, Willesden Green.  
 Rogers, Henry,\* — L.D.S., M.R.C.S. Eng., 16, Dorset Square.  
 Saunders, Herbert Sedgwick, — L.D.S. Eng., 103, Abbey Road, St. John's Wood.  
 Setacci, Attilio Regolo, — L.D.S. Eng., 16, Riffel Road, Willesden Green.  
*Sexton, Thomas*, 5, Mornington Crescent, Hampstead Road.  
 Sexton, Walter, — L.D.S. Eng., 5, Mornington Crescent.  
*Seymour, George*, — L.D.S. Eng., 101, West End Lane, West Hampstead.  
 Siemms, Frederick David Samson, 50, Cambridge Avenue, Kilburn.  
 Simmonds, William James Leslie, Hardwick House, Hampstead Road.  
 Smith, John Charles, Woodbyne, Hallowell Road, Northwood.  
 Stapfer, Heinrich, 2, Sussex Place, Regent's Park.  
 Steadman, S. F. St. J., — L.D.S. Eng., 113, Broadhurst Gardens.  
 Stevens, Bernard Maxwell,\* — L.D.S., 30, Chatsworth Road, Brondesbury.  
 Stevens, John, — L.D.S. Eng., 38, Craven Park Road, Harlesden.  
 Stevens, John S., 38, Craven Park Road, Harlesden.  
*Stocken, Arthur Percy*, — L.D.S. Edin., 21, Endsleigh Gardens.  
 Stuart, George, 5, Upper Baker Street.  
*Styles, Edwin*, 33, Camden Road.  
 Taplin, William Gilbert, 91, Hampstead Road.  
*Tattersall, Harold*, — L.D.S. Eng., 1, Sandwell Mansions, West End Lane, West Hampstead.  
 Tayler, Alfred Breach, 5, Titchfield Terrace, Albert Road, Regent's Park.  
 Turner, Harry Spencer, 1, Burton Road, Brondesbury.  
 Van Noorden, Emil John, — L.D.S. Glas., 33, Chatsworth Road, Brondesbury.  
 Vooght, William Joseph, 51, Fairfax Road, South Hampstead.  
 Wale, Samuel Thomas, — L.D.S. Eng., 7, Caple Road, Harlesden.  
*Watts, George William*, — L.D.S. Eng., 103, Haverstock Hill.  
 Wheeler, John Wells, 82, Princess Road, Kilburn.  
 White, Maurice, — L.D.S. Eng., 8, Inglewood Road, West Hampstead.  
 Wright, Alfred William, Jun., Ravena Lodge, Shoot-up-Hill, Brondesbury.

## LONDON, S.E.

- Allworth, Alfred, — L.D.S. Eng., Parliament House, Peckham Road.  
 Allworth, Alfred Leigh, — L.D.S. Eng., Parliament House, Peckham Road.  
 Allworth, Frank Parnell, — L.D.S. Eng., Parliament House, Peckham Road.  
 Anderson, Percy David, — L.D.S. Eng., 56, Gipsy Hill, Upper Norwood.



LONDON, S.E.

- Angell, Allan, —L.D.S. Eng., 60, Glengarry Road, East Dulwich.  
*Badcock, George Wallace,\** —L.D.S. Eng., Lulworth, Rushey Green, Catford.  
 Bartle, William Frederick, 21, King William Street, Greenwich.  
*Barnard, Alfred George William,\** 167, Westminster Bridge Road.  
 Bensted, Charles Samuel, 156, Stansted Road, Forest Hill.  
 Black, John, —L.D.S. Eng., The Nook, Wolpington Road, West Norwood.  
 Bradbury, Charles, 137, Lorrimore Road, Walworth.  
 Brereton, Thomas Rigby, 413, New Cross Road.  
 Brown, Alfred James, 55, Trafalgar Road, Greenwich. [Norwood.  
 Burton, Francis, —L.D.S. Eng. and Glas., 373, Norwood Road, West  
 Chinneck, Edward Gregory, —L.D.S.I., 113, High Road, Lee.  
 Chinneck, Herbert Edward, —L.D.S. Eng., 113, High Road, Lee.  
 Clark, Alexander, 7, London Road, Forest Hill.  
*Clark, Charles Alexander,\** —L.D.S.I., 7, London Road, Forest Hill.  
 Clements, George William, 118, Newington Butts.  
 Clogg, Arthur Henry,\* —L.D.S. Eng., 15, Central Hill, Upper Norwood. [Lewisham.  
*Collett, Albert James,* —L.D.S. Eng., 181, Hither Green Lane,  
*Creech, Henry Sully,* 86, Lewisham High Road.  
 Darch, Augustus, 112, Westminster Bridge Road.  
 Douthwaite, George Benjamin, 223, Queen's Road, New Cross Gate.  
 Driscoll, John, 119, Camberwell New Road, Kennington Park.  
*Dumayne, Frederick John,* —L.D.S.I., 114, Burnt Ash Road, Lee.  
 Dunkin, John Hanford, 132, Westminster Bridge Road.  
 Dymott, Francis, 214, Lewisham High Road.  
 Dymott, Gerald Lang, —L.D.S. Eng., 214, Lewisham High Road.  
 Edwards, Henry Herbert, 345, Norwood Road, West Norwood.  
 Edwards, William, Jun., 57, New Kent Road. [South Norwood.  
 Etheridge, Frederic Ledger, —L.D.S. Eng., 144, Selhurst Road,  
 Firman, Henry Elliston, 8, Selhurst Road, South Norwood.  
 Fitt, Francis E., 5, Peckham Rye.  
 Foley, Samuel, 266, Westminster Bridge Road.  
 Fouraker, Frank, —L.D.S. Eng., 26, Central Hill, Upper Norwood.  
 Frost, E. B. M., —L.D.S. Eng., 216, Queen's Road, New Cross.  
 Gater, James, 23, Victoria Road, Peckham.  
 Girdler, Arthur Thomas, 439, New Cross Road.  
 Glendining, Roland, —L.D.S. Eng., 126, Queen's Road, Peckham.  
 Green, Samuel, 60, Nunhead Lane. [West Dulwich.  
 Greenwood, Percy, —L.D.S. Eng., Brooklyn, Thurlow Park Road,  
*Greetham, Peter William,* —L.D.S. Eng., 40, Beckenham Road, Penge.  
 Greig, William Bulmer, 591, Old Kent Road.  
 Grewcock, William James, —L.D.S. Eng., 36, Beckenham Road, Penge.



## LONDON, S.E.

- Hall, James Gallopine, 9, New Terrace, Camberwell Green.  
 Hallett, John Robert, 202, Railton Road, Herne Hill.  
 Harrison, Edward, —L.D.S. Eng., Codrington, Central Hill, Upper  
 Hatfield, William Henry, 1, Park Road, Forest Hill. [Norwood.  
*Hinchliff, Charles John*, —L.D.S. Eng., 211, Selhurst Road, South  
 Norwood.  
*Hinchliff, William Orbel*, 116, Kennington Park Road.  
 Hodgkins, William, 147, Jamaica Road.  
 Hogwood, Edward, 25, Plough Road, Rotherhithe.  
 Hooper, Henry John, —L.D.S. Eng., 11, Montpelier Row, Blackheath.  
 Hopgood, A. Byrom, 218, Selhurst Road, South Norwood.  
*Hopkins, Alfred David*, —L.D.S. Eng., 137, Trinity Road, Upper  
 Tooting.  
 Jones, Jonah, 161, New Cross Road.  
 Josling, Alfred, 36, Lyndhurst Grove, Camberwell.  
 Kiddle, Richard Neller, —L.D.S.I., 46, Lee Terrace, Blackheath  
 Lansdowne, Frederick, —L.D.S. Eng.  
 Lloyd, Francis.  
*Lonnon, Frederick*, —L.D.S., M.R.C.S. Eng., L.R.C.P. Lond., 77, Den-  
 mark Hill.  
*Mackintosh, John Gordon*, —L.D.S. Glas., 267, Lewisham High Road.  
 Mason, Ernest Noel, —L.D.S. Eng., 306, Broadway, Bexley Heath,  
 Kent.  
 Merrick, Alfred, 20, Church Street, Camberwell Green.  
 Millen, Herbert Alfred, 113, Rye Lane, Peckham.  
 Nowell, Alexander, 44, New Cross Road.  
 Ohle, Frederick, 5, The Pavement, New Cross.  
 Palmer, Christopher, Montange Villa, Thurston Road, Lewisham.  
 Palmer, Francis, 3, Anerley Road, Upper Norwood.  
 Palmer, Frank Robert Edward, —L.D.S. Eng., South Lodge, Lee  
 Park, Lee High Road. [nington Park Road.  
 Parks, William John,\* —L.D.S. Eng., 27, Newington Crescent, Ken-  
 Parsons, William, 4, Eastcombe Terrace, Blackheath.  
 Peacock, James, 92, Hill Street, Peckham.  
*Pedley, George*,\* 17, Railway Approach, London Bridge.  
*Pedley, Richard Denison*,\* —L.D.S., M.R.C.S. Eng., F.R.C.S. Edin.,  
 17, Railway Approach, London Bridge.  
*Pedley, Samuel Edward*, —L.D.S., M.R.C.S. Eng., L.R.C.P. Lond.,  
 18, The Terrace, Peckham Road.  
 Phelps, Peyton, Milton, Alexandra Road, Gipsy Hill, Upper Norwood.  
*Pollard, Randolph Llewelyn*, —L.D.S.I., 51, Powis Street, Woolwich.  
 Powell, George, 43, Railton Road.  
 Pragnell, Matthew George, 61, Peckham Park Road.  
 Ransford, Leonard Urban, 145, Auckland Road, Upper Norwood.  
 Ritchie, Josiah, The Grange, South Norwood Hill.  
 Roberts, John Richard, 2, Skipton Street, London Road.  
 Rook, Eustace Henry, —L.D.S. Eng., 68, London Road, Forest Hill.

LONDON, S.E.

- Rowe, William, 32, Park Road, West Dulwich.  
*Rumball, Aubery Tom*, —L.D.S. Eng., 70, Peckham Road, Camberwell.  
 Rumsey, James Window, Medical Hall, 481, Lordship Lane, Dulwich.  
 Ryder, John Francis, —L.D.S. Eng., Hetherset, 155, The Rye, Peckham.  
 Salmon, Harold, 120, Peckham Rye.  
 Sandy, Frederick William, 193, Queen's Road, Peckham.  
 Shaw, William Henry, 177, Westminster Bridge Road.  
 Sheppard, James Alfred, 137, Kennington Road.  
 Smith, George Charles, 153, High Street, Lewisham.  
 Smith, John, —L.D.S.I.  
 Smith, John Sykes, 75, High Street, Plumstead.  
 Spencer, Thomas H., 38, South Street.  
 Spry Richard, 439, New Cross Road.  
 Stabb-Johnson, Edward William, —L.D.S. Eng., 46, Lee Terrace, Blackheath.  
 Stewart, Thomas William Frederick, 235, High Road, Lee.  
 Stone, Edwin Charles, 45, Tyers Street, Lambeth.  
 Strange, Paul, 62, Brockley Rise, Forest Hill.  
*Ta Bois, L.*, —L.D.S. Eng., 13, Lee Terrace, Blackheath.  
*Talintyre, Charles*, —L.D.S. Eng., Chester Villa, Belvedere Road, Upper Norwood.  
 Tompsett, Leighton Stovold, 127, Anerley Road.  
*Tothill, Walter*, —L.D.S. Eng., 7, Montpelier Row, Blackheath.  
 Tyrer, Peter, Cranfield Lodge, Bexley Heath.  
 Wagstaff, Charles Frederick, 46, Coldharbour Lane, Denmark Hill.  
 Wakefield, Stanley Bennett, —L.D.S. Eng.  
 Walker, Byatt Augustus, 3, Gowlais Road, Percy Rise.  
 Ward, George, 9, Bloom Grove, West Norwood.  
 Warner, Reginald George Helgaard, —L.D.S. Eng., Thetis House, 181, Breakspears Road, Brockley.  
 Warrington, Charles Bower, 38, Ivydale Road, Waverley Park, Nunhead.  
*Watson, Charles*, 135, Grove Lane, Denmark Hill.  
 Webb, John Powell, 103, Lewisham High Road.  
*Wedgwood, Herbert Williamson*, —L.D.S. Eng., 11, Farquhar Road, Upper Norwood.  
 Whales, Thomas, 41, London Road, Southwark.  
 Wiggins, Henry, 236, Southwark Park Road, Bermondsey.  
*Williams, Charles Henry Hughes*, —L.D.S. Eng., 7, Montpelier Row, Blackheath.  
 Williams, Ivor Thomas, —L.D.S. Eng., 28, Half Moon Lane, Herne Hill.  
 Willis, George Nicholas, —L.D.S. Eng., 21, Barry Road, East Dulwich.  
 Wilson, Edward, —L.D.S.I., 163, High Street, Lewisham.  
*Winder, R. A.*, —L.D.S. Eng., 196, Selherst Road, South Norwood.

Young, Ernest Edward, —L.D.S. Eng., 36, Eltham Road, Lee.  
 Zobel, Arthur Hedley William, 34, Coldharbour Lane, Camberwell.  
 Zucker, Solomon, 141, Walworth Road.

## LONDON, S.W.

Albert, Henry Louis, —L.D.S., M.R.C.S. Eng., 49, Sloane Street.  
*Albert James Valek*, —L.D.S.I., M.R.C.S. Eng., L.R.C.P. Lond.,  
 49, Sloane Street.  
 Albert, John Gabriel, —L.D.S.I., 349, Brixton Road.  
 Arliss, Percy, —L.D.S. Eng., 23, Cromwell Place, South Kensington.  
 Ash, Edward Thomas, Lynnbury, Galveston Road, Putney.  
 Ash, Ernest John, 41, Mysore Road, Lavender Hill, S.W.  
 Ash, William, —L.D.S., M.R.C.S. Eng., 7, Trenadoc Road, Clapham.  
 Ashford, Hector Seaman, 3, High Street, Clapham.  
 Baker, William Henry Griffiths, —L.D.S. Eng., 22, Lingfield Road,  
 Wimbledon.  
 Barton, Tom Treherne, —L.D.S.I., 16, Lingfield Road, Wimbledon.  
 Barnard, Walter Burrows, —L.D.S. Eng., 77, Upper Richmond Road,  
 Putney.  
 Barrington, James Robert, 2, Smallwood Road, Lower Tooting.  
*Bell, Arthur Osborne*,\* —L.D.S. Eng., 42, Worple Road.  
 Bell, Matthew Whitelock, 9, Bank Buildings, Wandsworth.  
*Bellamy, Frederick Adolphus*, —L.D.S.I., 29, Streatham High Road.  
 Belsey, Herbert Henry,\* —L.D.S. Eng., 32, South Eaton Place,  
 Eaton Square.  
 Belsey, Robert, 32, South Eaton Place, Eaton Square.  
*Bennett, John Henry*, —L.D.S. Eng., 32, Redcliffe Road, Kensington.  
 Bennett, Walter, 20, South Side, Clapham Common.  
*Beverley, Edgar Adolph*,\* —L.D.S. Eng., 22, Rosary Gardens, South  
 Kensington.  
 Bird, Edward Augustus, 29, Warwick Street, Pimlico.  
*Bonnell, Bentley Jay*,\* 94, Cornwall Gardens, South Kensington.  
 Bourdas, John, —L.D.S. Eng., Dunoon House, 2, West Side, Clapham  
 Common.  
 Bradshaw, Albany Christie, 47, Christchurch Road, Streatham.  
*Breese, Frederick*,\* —L.D.S. Eng., 328, Brixton Road.  
 Brooks, Robert Heygate, 182, Elms Road, Clapham Common.  
*Buckland, Sydney Charles*, —L.D.S., M.R.C.S. Eng., 31, Fairview,  
 Wimbledon Park.  
 Buist, Henry, 66, Lupus Street, Belgravia.  
*Cahill, Alfred*,\* —L.D.S. Eng., 103, Earl's Court Road.  
 Cardell, Arthur John, —L.D.S. Eng., 171, Victoria Street, Westminster.  
*Carter, Charles Edward*, —L.D.S. Eng., 1, Ambleside Avenue, Streatham.  
 Chard, Frederick James, 44, Wandsworth Bridge Road, Fulham.  
 Cheetham, William Henry, 19, Slansfield Road.  
*Clark, John Kenneth*, —L.D.S. Eng., 40, Killieser Avenue, Streatham  
 Hill.  
 Clendinning, Andrew, 89, Bedford Road, Clapham.

LONDON, S.W.

- Coffin, Harold Lewis*, 94, Cornwall Gardens, South Kensington.  
*Colyer, Stanley William Randolph*, —L.D.S. Eng., 84, Palace Hill, Tulse Hill.  
*Cook, Percy Herbert*, —L.D.S. Eng., 13, Castelnau, Barnes.  
*Cove, Henry Francis Lawrence*, 12, Sussex Street, Warwick Square.  
*Cox, Robert*, 200, Balham High Road.  
*Cresswell, Frederick*, 357, Battersea Park Road.  
*Crocker, Thomas Bailey*, 121, Northcote Road, Clapham Junction.  
*Croome, William Thomas Smith*, 86, Tyneham Road, Lavender Hill.  
*Crosby, Alfred Edward Binnington*, —L.D.S. Eng., 214, King's Road, Chelsea.  
*Curtis, George Herbert*, L.D.S. Eng., 184, High Road, Balham.  
*Dagnall, George Clement*, —L.D.S.I., 254, Fulham Road.  
*Danks, George Frederic*, 390, Brixton Road.  
*Danks, John Alfred*, 368, Brixton Road.  
*Davis, Cartwright*, 81, Knightsbridge.  
*Davis, Charles Daniel*,\* —L.D.S., M.R.C.S. Eng., 1, Streatham Hill.  
*Devonshire, Richard Kempe*, —L.D.S. Eng., 48, Dagnham Road, West Hampstead.  
*Dodridge, Thomas Mitchell*, 144, Lavender Hill, Battersea.  
*Dumayne, Henry Langford*, —L.D.S.I., Hillfoot, Wimbledon Hill.  
*Duncan, James Stark*, —L.D.S.I., 9, Charles Street, St. James's Square.  
*Duncan, Oliver Gold*, —L.D.S. Eng., 27, Eccleston Street, Chester [Square.  
*Dupigny, Joseph Elford*, 7, Streatham Hill. [sington.  
*Ellis, William Brewster*, 57, Brixton Road.  
*Eskell, Eustace Lewis*, —L.D.S. Eng., 2, Onslow Place, South Ken-  
*Fagge, Leonard Murton*, Woodville, 716, Fulham Road.  
*Farr, Frederick Harold*, —L.D.S. Eng., 96, Cornwall Gardens, Gloucester Road.  
*Fickling, Robert Marshall*,\* —L.D.S. Eng., 49, Sloane Street.  
*Fisher, Frank Douglas*, 405, Fulham Road.  
*Fowler, William*, 2, Onslow Place, South Kensington.  
*Gaffney, E.*,\* —L.D.S. Eng., 'Hambly,' Streatham Common.  
*Gardner, Ernest*,\* —L.D.S. Eng., 1, Aspley Place, Victoria Street, Westminster.  
*Geary, George*, 31, Northcote Road, Clapham Junction.  
*Glassington, Charles William*,\* 6, Pelham Crescent, South Kensington.  
*Glassington, John*, 26, Wellesley Road, Croydon.  
*Glindon, Richard*, 473, Battersea Park Road.  
*Goddard, George Edward*, Melton House, Parson's Green Lane.  
*Grimsdale, Frank Gannon*, —L.D.S. Eng., 135, Upper Richmond Road, Putney.  
*Hairsine, Herbert Seaton*, 47, Haymarket.  
*Händel, Franz Edward*, —L.D.S. Eng., 227, Balham High Road.  
*Hanreck, Jacob*, 25, North End Road, West Kensington.  
*Hare, Seymour William*, 112, Elm Park Gardens, South Kensington.

## LONDON, S.W.

- Harper, Frank Horace, 123, High Street, Putney.  
*Harwood, Edwin William*,\* —L.D.S. Eng., 97, Sloane Street.  
*Holding Frank*, —L.D.S. Eng., Hazeldean, Fulham Park Gardens.  
Holmes, Robert Gabriel Stuart, —L.D.S. Eng., 5, Bladon Terrace, Streatham Common.  
Hope, Hodgskin Conyers, 44, Brompton Road, S.W.  
Hughes, John Myddelton, 48, Fulham Road.  
Huggins, Harold Samuel, —L.D.S. Eng., 126, Fulham Road.  
Jefferies, Thomas, 1, Parson's Green Lane, Fulham Road.  
Johnson, Frederick Robert, Brixton Dispensary, Water Lane, Brixton.  
Jones, Francis, 67, Milton Road, West Kensington.  
*Jones, S. H.*, —L.D.S. Eng., 117, Edith Road. [Kensington.  
Keen, Edward, —L.D.S., M.R.C.S. Eng., 62, Sydney Street, South  
*Kenyon-Jeffes, Harry*, —L.D.S., R.C.S. Eng., 252, Clapham Road.  
Kingett, Thomas Edmund, 157, Clapham Road.  
Knight, Henry, 103, High Street, Wandsworth.  
Knight, Horace, —L.D.S. Glas., 19, Merton Road.  
Lechmere, Edward, —L.D.S. Eng., 29, Cadogan Gardens, S.W.  
Lee, William Edward, 412, Fulham Road.  
Lloyd, Augustus, —L.D.S. Eng., 128, Brixton Hill.  
Lloyd, William E.,\* —L.R.C.P. Lond., M.R.C.S. Eng., L.S.A.,  
L.D.S. Eng., 11, Buckingham Gate.  
Lowe, William Ernest, —L.D.S. Eng., 23, Alderbrook Road, Balham.  
*Manning, Robert Harris*, —L.D.S. Eng., 3, Lancaster Place, Richmond Hill. [Square.  
Manton, George Sydney Frederick, —L.D.S. Eng., 1, Earl's Court  
Marshall, Graham, —L.D.S. Eng., 214, High Road, Balham.  
*Matheson, Henry Alexander*, —L.D.S. Edin., 150, Brompton Road.  
*Marston, Daniel*, North View, South Side, Clapham.  
*May, Robert*, —L.D.S. Eng., 60, Belgrave Road, Warwick Square.  
Mence, William Cookes, —L.D.S. Glas., 2, Claremont Road, Surbiton.  
Miles, A., 74, Elms Road, Clapham.  
*Miller, Frederick Tayler*, —L.D.S. Eng., 200, Earl's Court Road.  
Mills, Charles, —L.D.S. Eng., 188, Bedford Hill, Balham.  
Mills, Victor Edwin, —L.D.S. Eng., c/o Medical Department Admiralty, 18, Victoria Street.  
Mitchell, Frederick William,\* —L.D.S. Eng., 176, Clapham Road.  
*Moritz, Richard Carl*, —D.M.D. Harv., 130, Cromwell Road, South Kensington.  
Morris, Charles Sculthorpe,\* —L.D.S. Eng., Guy's Hospital, St. Thomas's Street; 27, New Cavendish Street, W.  
Moser, Frederick Rudolph, —L.D.S. Eng., 187, Brixton Road.  
New, George Herbert, —L.D.S. Eng., 5, Hill Street, Rutland Gate.  
Noble, Charles James, —L.D.S. Eng., 96, Cornwall Gardens, Queen's Gate.  
Ollive, Henry John, —L.D.S. Eng., 57, Oakley Street, Chelsea.



LONDON, S.W.

- Orridge, Alfred Edward Horton*, —L.D.S. Eng., 272, Lavender Hill.  
*Oscroft, John Tetley*, 418, Clapham Road.  
*Osmer, Thomas Hitchcock*, 41, Battersea Rise.  
*Packham, Charles Henry*, 22, Ramsden Road, Balham.  
*Painter, Edmund John*, 55, Finborough Road, South Kensington.  
*Painter, Ernest Frederick*, 628, Fulham Road.  
*Partridge, Alfred Mitchell*, —L.D.S. Eng., 12, Balham Hill.  
*Partridge, W. E.*, —L.D.S. Eng., 56, South Side, Clapham Common.  
*Partridge, Walter Eriencus*, —L.D.S. Eng., St. James's Court, Buckingham Gate.  
*Payne, Archibald Gates*, —L.D.S. Eng., 117, Drakefield Road, Tooting Common. [Square].  
*Payne, George William*, —L.D.S. Eng., 34, Ebury Street, Chester  
*Peall, Frederick Snell*, —L.D.S.I. and Eng.  
*Perks, Edward Cloudesley*, —L.D.S.I., 1, Sloane Square.  
*Pickhardt, Julius Gustav Edward*, 24, Munster Road, Fulham.  
*Pierpont, Evelyn*, —L.D.S.I., D.M.D. Harv., Bank Chambers, 2, Cockspur Street, Charing Cross.  
*Pitts, Thomas Smales*, 31, Crowley Road, Brixton.  
*Poate, Herbert*, 2, Suffolk Place, Pall Mall.  
*Pooch, Ebenezer*, —L.D.S.I., 295, Vauxhall Bridge Road.  
*Pratt, Robert James Hartland*,\* Westfield, Putney Hill.  
*Pretty, Charles*, 52, Lillie Road.  
*Ray, George Wheatcroft*, —L.D.S. Eng. [Streatham].  
*Recordon, Ralph Bertram*, —L.D.S. Eng., 25, Thirlmere Road,  
*Rice, Arthur*, —L.D.S. Eng., 11, Buckingham Gate. [Common].  
*Roberts, Alfred William*, —L.D.S. Eng., 1, West Side, Wandsworth  
*Roberts, Edgar Hughes*, 83, Ashbury Road, Lavender Hill.  
*Robey, Arthur Malcolm*, —L.D.S. Eng., 108, St. John's Hill, New Wandsworth.  
*Robinson, Charles James*, 3, The Broadway, Streatham.  
*Robinson, Richard Atkinson*, 195, Brompton Road.  
*Rogers, Frederick Albert*, 27, St. Maur Road, Fulham Road.  
*Rutterford, Charles Frederick*, —L.D.S.I., 64, Nightingale Lane.  
*Ryan, Thomas Francis*, —L.D.S. Eng., 18, Wellington Square, Chelsea.  
*St. Aubyn, Edmond Charles*, 178, Earl's Court Road, Kensington.  
*Seward, George Halifax*, 12, Battersea Rise, Clapham Common.  
*Shea, Daniel*, 9, Charles Street, Knightsbridge.  
*Shears, William Henry*, 7, Park Grove, Battersea.  
*Smith, Alexander Alfred*, —L.D.S. Eng., 90, Larkhall Rise, Clapham.  
*Smith, Edward Frederick*, —L.D.S. Eng., 176, Brixton Road.  
*Smith, Frederick Augustus*, 176, Brixton Road.  
*Smith, Fuller*, 10, Tachbrook Street. [Square].  
*Smith, John Alexander*,\* —L.D.S. Eng., 26, Eaton Terrace, Eaton  
*Smith, John Percy*,\* —L.D.S. Eng., 26, Eaton Terrace, Eaton Square.  
*Smith, Thomas William*, —L.D.S. Eng., 12, Thurlow Terrace, Larkhall Rise.



## LONDON, S.W.

Spalding, William Richard, 14, Aston Road, Raynes Park, Wimbledon.  
 Spiller, John Edmund,\* —L.D.S. Eng., 128, Worple Road.

*Stevens, Alfred,\** —L.D.S.I. and Edin., 11, Clapham Park Road.

*Stevens, Alfred Montague Austin,* —L.D.S. Eng., 11, Clapham Park Road.

Stewart, James Dickson, 100, Richmond Road, South Kensington.

Sutton, Walter, 204, Clapham Road.

Taylor, Frederick St. Barbe, Moorings, Sandycombe Road, St. Margarets.

Temple, Arthur William, 1, Churton Street, Pimlico.

Tice, Henry William, —L.D.S. Eng., 180, Upper Richmond Road, Putney.

Timms, Samuel Day, —L.D.S. Eng., 49, Balham Park Road.

Townsend, Lewis William, —L.D.S. Eng., 85, East Hill, Wandsworth.

*Van der Pant, Horace William,* —L.D.S. Eng., Stockwell Lodge, Worple Road.

Wallis, Ferdinand Hammans, —L.D.S. Eng., 93, Cornwall Gardens, Queen's Gate.

*Wallis, C. J. Boyd,* —L.D.S. Eng., 21, St. James' Road, Upper Tooting.

*Wanstall, Edmund Percival,* —L.D.S.I., 16A, Putney Hill, Putney.

Welham, George William, —L.D.S. Eng. and Edin., 365, Brixton Road.

Welham, Herbert Sydney, Mona Lodge, Streatham High Road.

West, William, 75, Lewin Road, Streatham Common.

Wheeler, William Hamilton, 73, Gauden Road, Clapham.

Whitehouse, Walter, —L.D.S. Edin., 139, Victoria Street, Westminster.

Wigginton, Alfred, 137, Sloane Street.

Williams, David Henry, Talgarth, Thornbury Road, Isleworth.

Williams, George Humphrey, 38, The Avenue, Acre Lane, Brixton.

Williams, Thomas Robert, 313, Lavender Hill, Clapham Junction.

Wilshire, William Henry, 236, Lavender Hill, Clapham Junction.

Windmill, William Henry, —L.D.S.I., H.M. Prison, Wandsworth.

*Winterbottom, Augustus,\** —L.D.S., F.R.C.S. Eng., 16, Sloane Street.

*Winterbottom, Charles,\** —L.D.S., M.R.C.S. Eng., 16, Sloane Street.

Wyatt, Walter, 81, Fernlea Road, Balham.

Yeates, Andrew George, 703, Wandsworth Road.

## LONDON, E.

Aubrey, Edward, 3, Vicarage Lane, Romford Road, Stratford.

Bowler, William James, 401, Mare Street, Hackney.

Cowles, Hector Charles, —L.D.S. Eng., 37, Broadway, Stratford.

Croxford, Arthur William, 195, Commercial Road.

Fairs, William, 586, Old Ford Road, Bow.

Farnell, Edwin George, 345, Mare Street, Hackney.

Fentiman, Alfred John, 2, Upper East Smithfield, Tower Hill.

Fentiman, Charles Henry, 167, Cambridge Road, Mile End.

LONDON, E.

Ford, Joseph William, 29, Green Street, Bethnal Green.  
 Gill, Christopher Lawrence, —L.D.S. Eng., 103, Bow Road.  
 Gorton, Charles, 146, High Street, Whitechapel.  
 Gorton, George, 146, High Street, Whitechapel.  
 Green, Thomas Frederick, 143, Leytonstone Road, Stratford.  
 Harley, Edward Thomas, 313, Mare Street, Hackney.  
 Harley, Thomas Self, 313, Mare Street, Hackney.  
 Hellwig, Edward.  
 Hill, George William, 22, Pelling Street, Limehouse.  
 Hill, William, 147, Well Street, South Hackney.  
 Holford, Thomas Constantine, 342, High Street, Stratford.  
 Holford, Trafford Claudius, —L.D.S. Eng., 342, High Street, Stratford.  
 Hope, William Anthony, —L.S.A., 32 and 34, Grafton Road, South  
 Plaistow.  
 Johns, William Richard, 204, Grove Road, Victoria Park.  
 Krutzikowsky, Baldwin, 6, Church Street, West Ham.  
 Lewis, Jablonski Simon, 54, High Street, Poplar.  
 Litten, Henry, 51, Vicarage Lane, West Ham.  
 Lyddon, George, —L.D.S. Eng., 3, Belgrave Road, Ilford.  
 Metzler, Henry, 98, Minories.  
 Mosely, Edward, 113, Romford Road.  
 Nicholls, T., 99, Wick Road, South Hackney.  
 Nunn, Samuel, 530, Old Kent Road.  
 Parsons, Adrian, 65, Osbourne Road, Forest Gate.  
 Peacock, Percy, 237, High Street, Poplar.  
 Peacock, Rudolph, —L.D.S. Eng., 237, High Street, Poplar.  
 Powell, George, 56, Brownlow Road, Dalston. [Ilford.  
 Rose, Charles Frederic, —L.D.S. Eng., 6, Queen's Terrace, High Road,  
 Rose, Charles Frederick, 142, The Grove, Stratford.  
 Searle, Samuel, 101, Upper Clapton Road.  
 Sharman, William, 186, Mare Street, Hackney.  
 Smart, William, 27, Aldgate.  
 Thompson, Henry John, 192, Bow Road.  
 Watson, William, 37, Roman Road, Victoria Park. [Gate.  
 Wilmore, Walter, —L.D.S. Eng., Romsoall, Earllam Grove, Forest  
 Wortley, Stuart, 422, Mile End Road.  
 Wucherpfennig, Ernst August, 20, Roman Road, Victoria Park.  
 Young, George, 73, West Ferry Road, Millwall.

LONDON, E.C.

Albert, Adolphus Ephraim, 24, Ludgate Hill.  
 Bailey, Isaac, 42, Bishopsgate Street Without.  
*Combe, Charles,\** —L.D.S.I., 73, Cheapside.  
*Coombe, C. E.,\** —L.D.S.I., 73, Cheapside.  
 Constant, Frederick Charles, —L.D.S. Eng., 15, Queen Street, Cheap-  
 side.

## LONDON, E.C.

- Cook, Stanley*,\* —L.D.S. Eng., 58, New Broad Street.  
*Costa, Josiah Paxton*, 113, Leadenhall Street.  
*Cumine, R. H.*, —L.D.S.I., 4, Finsbury Circus.  
*Curnock, George Dennis*,\* —L.D.S. Eng., Finsbury Circus House, Blomfield Street.  
*Eichert, Ferdinand*, 44, Lever Street, Goswell Road.  
*Fritche, George Edwardes*, —L.D.S.I., 13, Walbrook, Mansion House.  
*Gabriel, William Maurice*, —L.D.S., M.R.C.S. Eng., 72, Ludgate Hill.  
*Gallatly, George Frederick*, 86, Aldersgate Street.  
*Harris, Alfred Ellis*, 64, Finsbury Pavement.  
*Harris, Henry Ellis*, —L.D.S.I., 64, Finsbury Pavement.  
*Harrison, Philip*,\* —L.D.S. Eng., 36, Finsbury Pavement.  
*Henry, Percy Francklin*,\* —L.D.S. Eng., 79, King William Street.  
*Henry, William Francklin*, —L.D.S. Eng., 79, King William Street.  
*Hickman, Sampson Ralph*, 8, Cheapside.  
*Hoare, James Treadaway*, 208, Goswell Road.  
*Hulme, Richard Gleave*, —L.D.S.I., 16, Finsbury Circus.  
*Humby, Daniel MacLean*, 88, Newgate Street.  
*Humby, W. J.*, —L.R.C.P., M.R.C.S., L.D.S. Eng., 88, Newgate St.  
*Humby, William Robinson*,\* —L.D.S. Eng., 88, Newgate Street.  
*Jones, William Merton*, 43, Fenchurch Street.  
*Lane, Robert*, 75, Finsbury Pavement.  
*Matland, George Read*, 1, Finsbury Pavement.  
*Maitland, Thomas Collier*, 1, Finsbury Pavement.  
*Miles, Edward*, 15, Queen Street, Cheapside.  
*Mitchell, Henry*, 60, New Broad Street.  
*Pond, George Peter*, 68, Fleet Street.  
*Porter, William Pratt*, 75, Finsbury Pavement.  
*Prager, Ezekiel William*, 351, City Road.  
*Prager, Julius*, 351, City Road.  
*Preston, Joseph Charles*, —L.D.S. Glas., 60, Moorgate Street.  
*Richards, Charles Joseph*, 208, Goswell Road.  
*Roberts, Frederick George*, 24, Ludgate Hill.  
*Sayles, Francis Austin*, —L.D.S. Eng., 35, Finsbury Square.  
*Swabey, P. F.*, —L.D.S. Eng., 49, Newgate Street.  
*Todd, Frederick*, —L.D.S., M.R.C.S. Eng., 21, Finsbury Circus.  
*Usher, Harry William Paget*, 397, City Road.  
*West, Charles*,\* —L.D.S. Eng., 41, Finsbury Square. [well  
*Wood, George Edmund*, —L.D.S. Eng., St. John's Rectory, Clerken-

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LONDON, W.

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*Apperley, Ebenezer*,\* —L.D.S., 1, York Mansions, Princess Street, Cavendish Square.  
Arnold, Charles, —L.D.S.I., 37, Herries Street, Queen's Park.  
Ashton, Thomas Gray, 2, Alperton Street, Queen's Park.  
Austen, Harold William Colmer, —L.D.S. Eng., 129, Harley Street.  
Ayton, Edward Innes, 71, Grosvenor Street. [Street.  
*Badcock, John Henry*,\* —L.D.S., M.R.C.S. Eng., L.R.C.P., 140, Harley  
Bailey, Edwin, 205, Ladbroke Grove, North Kensington.  
*Bailey, William Benjamin*, 164, Westbourne Grove.  
*Baker, Arthur Ernest*,\* —L.D.S. Eng., 44, Brook Street, Grosvenor Square.  
*Baldwin, Harry*,\* —L.D.S., M.R.C.S. Eng., 37, Cavendish Square.  
Ballard, Frederick Arthur, 1, Oxford Street.  
Ballard, William Roberts, 36, Harley Street.  
*Baly, Charles*, 140, Harley Street.  
*Baly, Charles Francis Peyton*,\* L.D.S., M.R.C.S. Eng., L.R.C.P., 152, Harley Street.  
Bantin, Thomas Austin, 35, Connaught Street, Connaught Square.  
Barclay, Maurice, 274, Oxford Street.  
*Barrett, Ashley William*,\* —L.D.S., M.R.C.S. Eng., M.B., 7, Cavendish Place.  
*Barrett, Frederick Walter*,\* —L.D.S., M.R.C.S. Eng., L.R.C.P., 7, Cavendish Place.  
*Barrett, Walter Russell*,\* —L.D.S., M.R.C.S. Eng., L.R.C.P., 1, Harley Street, Cavendish Square.  
*Bartlett, Edward*,\* —L.D.S., M.R.C.S. Eng., 38, Connaught Square.  
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*Baxter, John Newsome*, —L.D.S. Glas. and Edin., 3, The Cedars, 141, Hammersmith Road.  
*Bayfield, Charles Moulden*, —L.D.S.I., 123, Inverness Terrace.  
Bell, James Dias, —D.M.D. Harv., 20, Queen Anne Street, Cavendish Square.  
*Bennett, Frederick Joseph*,\* —L.D.S., M.R.C.S. Eng., 17, George Street, Hanover Square.  
*Bennett, Norman Godfrey*,\* —L.D.S., M.R.C.S. Eng., L.R.C.P., M.S., M.B., 50, Brook Street, Grosvenor Square.  
Benwell, Frederick Joseph Charlton, 21, Seymour Place, Hyde Park.  
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Bienemann, Edgar Caspar, —L.D.S. Glas.  
*Blackmore, Herbert George*, —L.D.S. Eng., 23, Gloucester Gardens, Hyde Park.

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*Bowtell, Stewart Ross*, —L.D.S. Eng., 10, Madeley Road, Ealing.  
*Boyton, Ivan John Howard*, —L.D.S. Eng., 69, Connaught Street.  
*Bradshaw, Richard Giles*, 42, Harley Street.  
 Braine, F. H. J. Carter, —L.D.S. Glas., 67, Wimpole Street.  
 Bridgman, Francis George, —L.D.S. Eng., 5, Duchess Street, Portland Place.  
 Brock, Samuel, 14, Stratford Place, Oxford Street.  
 Brough, Henry James, 7, Netherwood Road, West Kensington.  
 Brown, James Warburton, —L.D.S. Eng., 1, Charles Street, Berkeley Square.  
*Brown, Leonard*,\* —L.D.S. Eng., 87, Uxbridge Road, Ealing.  
 Browning, Daniel, —L.D.S. Eng., 27, Upper Montagu Street, Montagu Square.  
 Browning, Edward, 133, Oxford Street.  
*Bubb, C. H.*,\* —L.D.S. Eng., 1, Burlington Gardens.  
 Burgess, Thomas, 12, Foubert's Place.  
 Burn, Henry, 131, Chevening Road, Queen's Park.  
*Butcher, John Oliver*,\* —L.D.S. Eng., 26, Harley Street.  
 Buttar, Edward James, —L.D.S. Eng., 10, Kensington Gardens Square.  
*Campkin, H. T.*, —L.D.S. Eng., 46, Seymour Street.  
 Campkin, Percival Sydney, —L.D.S. Eng., 40, Curzon Street, Mayfair.  
*Campkin, Percival Sidney*,\* —L.D.S. Eng., 40, Curzon Street, Mayfair.  
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*Canton, Frederick*,\* —L.D.S., M.R.C.S. Eng., L.R.C.P., 24, Upper Wimpole Street. [practice.]  
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*Carteighe, John*, —L.D.S. Eng., 130, Holland Park Avenue.  
*Carter, Henry Charles*, —L.D.S.I. and Eng., 181, Edgware Road.  
*Carter, James Thornton*, —L.D.S. Eng., 1, Hanover Square.  
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 Cartwright, Alexander,\* —M.R.C.S., —L.D.S. Eng., 32, Old Burlington  
 Clark, Charles Lane, —L.D.S. Eng., 46, Brook Street, Grosvenor Square.  
*Clayton, Edward*, —L.D.S. Eng., 47, Devonshire Street, Portland Place.  
 Clifford, Isidore, —L.D.S. Eng., 20, Grosvenor Street.  
 Clifford, Ruby Edmund, 20, Grosvenor Street.  
 Clifford, Stanley, 20, Grosvenor Street.  
 Clifford, Sydney, —L.D.S. Eng., 29, Chepstow Place, Bayswater.  
 Clifford, Walter, 20, Grosvenor Street.



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*Colyer, James Frank*,\* —L.D.S., M.R.C.S. Eng., L.R.C.P. Lond.,  
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*Cooper, Henry Creemer*, —L.D.S., M.R.C.S. Eng., L.R.C.P., L.S.A.  
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*Cotterell, Charles Vincent*,\* —L.D.S.I., 76, Grosvenor Street.  
*Coysh, Thomas Arthur*, —L.D.S. Eng., 373, High Road, Chiswick.  
*Cribb, Harold Ernest*,\* —L.D.S. Eng., 6, Stratford Place.  
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*Crowther, William Harding*, 15, Bloomfield Road, Ealing.  
*Cutler, Arthur Hyde*, 1, Gloucester Street, Portman Square.  
*Davenport, Kirk Addison*, —D.M.D. Harv., 20, Stratford Place.  
*Dauids, Ernest Cornils*, —L.D.S. Eng., 30, Monmouth Road, West-  
 bourne Grove.  
*Davies, Charles*, 194, Holland Park Avenue.  
*Davies, John*, 106, Edgware Road.  
*Davis, Edward Lawrence Hime*, 6, Devonshire Street, Portland Place.  
*Davis, Lionel Cartwright*, 140, Edgware Road.  
*Davis, Marcus*,\* —L.D.S. Eng., 42, Harley Street.  
*Davis, Murray*,\* —L.D.S. Eng., 18, Wimpole Street.  
*Davis, Neville Murray*, —L.D.S. Eng., 18, Wimpole Street.  
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*Day, Joseph Henry*, —L.D.S., M.R.C.S. Eng., L.R.C.P. Lond., 60,  
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*Densham, Ashley Bloomfield*,\* —L.D.S., M.R.C.S. Eng., L.R.C.P.  
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*Dickey, William Craufuird McNaghten*, 354, High Road, Chiswick.  
*Dodd, Frederick Lawson*,\* —L.D.S., M.R.C.S. Eng., L.R.C.P. Lond.,  
 41, Wimpole Street.  
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*Dolamore, William Henry*,\* —L.D.S., M.R.C.S. Eng., L.R.C.P.  
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*Dowsett, Ernest Blair*,\* —L.D.S., M.R.C.S. Eng., L.R.C.P. Lond.,  
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*Dowsett, George Harris*, 1, Gloucester Street, Portman Square.  
*Doyle, Clement Needham*, —L.D.S. Eng., 30, New Cavendish Street.  
*Durlacher, Edward Newton*, 15, Old Burlington Street.  
*Edgelon, J. Percy*, —L.R.C.P. Edin., M.R.C.S. Eng., D.M.D. Harv.,  
 94, Harley Street.  
*Elliott, William*, 97, Devonport Road, Shepherd's Bush.  
*Ellis, Edwin Maurice*, 119, Goldhawk Road, Shepherd's Bush.  
*Ellis, Robert Uther*, 14, Turnham Green Terrace.



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*Fairbank, John*,\* —M.R.C.S. Eng., 18, George Street, Hanover Square.  
*Fairbank, Robert S.*, —M.R.C.S., L.S.A. Lond., 18, George Street, Hanover Square.  
*Farmer, Francis Mark*,\* —L.D.S. Eng., 53, Wimpole Street.  
*Fay, Arthur Louis*, —L.D.S.I., 21, Upper Wimpole Street.  
*Feltham, Robert Ernest Dalton*, 19, Saville Row, Old Bond Street.  
*Fennings, Frank Joseph*, —L.D.S. Eng., 24, Elgin Crescent, Notting Hill.  
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*Field, George William*, 23, Park Street, Park Lane. [sington.  
*Field, George William, Jun.*, —L.D.S.I., 64, Addison Road, Ken-  
*Finnigan, Percy O'Connell*, —L.D.S. Eng., D.D.S. Mich., 5, Harley Street.  
*Flack, William Rice*, —L.D.S.I., 29, Lower Phillimore Place, High Street, Kensington.  
*Forbes, Augustus Harold*, —L.D.S. Eng., 49, Elgin Mansions, Maida Vale. [Square  
*Forsyth, Harry Arthur*,\* —L.D.S. Eng., 24, George Street, Hanover Square.  
*Forsyth, Lennard William*,\* —L.D.S. Eng., 24, George Street, Hanover Square. [Square.  
*Forsyth, William Frederic*,\* —L.D.S. Eng., 24, George Street, Hanover Square.  
*Foster, John Skinner*, 107, King Street, Hammersmith.  
*Francis, John Stanley*, —L.D.S. Eng., 2, Cambridge Street, Hyde Park Square. [Place.  
*Gale, Thomas William*, —L.D.S.I., 54, Devonshire Street, Portland Place.  
*Gardner, H. Bellamy*, —M.R.C.S. Eng., L.R.C.P. Lond., 3, Mansfield Street, Portland Place.  
*Gibbons, Clifford*, 20, Stratford Place.  
*Gill, Henry Beadnell*,\* —L.D.S. Eng., 38, Harley Street.  
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*Gould, Horace John*,\* —L.D.S. Eng., 18, Hanover Street, Hanover Square.  
*Gracey, Ralph Nelson*, —L.D.S. Eng., 41, Wimpole Street.  
*Green, Roland*, —L.D.S. Eng., 60, The Avenue, West Ealing.  
*Green, Walter*,\* —L.D.S. Eng., 14, The Common, Ealing.  
*Greenfield, Harry William*, 87, Mortimer Street, Cavendish Square.  
*Hall, Edward Caleb Joseph*,\* —L.D.S. Eng., 18, Orchard Street, Portman Square.  
*Hall, Frank*, —L.D.S.I., 97, Edgware Road.  
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*Hambridge, Thomas*.

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- Hankey, John Trevor,\* —L.D.S. Eng., 23, Gloucester Gardens, Hyde
- Harris, Percy Reeves Traer,\** —L.D.S. Eng., 112, Harley Street.
- Harris, T. William,* —L.D.S. Eng., 10, Cavendish Place.
- Hart, Alfred Abraham, —L.D.S. Eng., 10, Welbeck Street, Cavendish Square. [sington.
- Haycroft, A. H., —L.D.S. Eng., 33, Collingham Place, South Ken-
- Hayman, Albert Stephen,* —L.D.S. Eng., L.R.C.P., L.R.C.S.I., 45, Welbeck Street.
- Hays, W. Palmer, —L.D.S. Eng., 112, Harley Street.
- Hepburn, David,\** —L.D.S. Eng., 9, Portland Place.
- Herbert, Frank Daniel —L.D.S.I., 18, Lower Phillimore Place, Kensington.
- Hern, George,\** —L.D.S., M.R.C.S. Eng., L.R.C.P. Lond., 7, Stratford Place, Oxford Street.
- Hern, William,\** —L.D.S., M.R.C.S. Eng., 7, Stratford Place, Oxford Street. [Square.
- Herschell, Ridley,\** —L.D.S. Eng., 27, Welbeck Street, Cavendish
- Hickes, Charles, —L.D.S. Eng., 130, Holland Park Avenue.
- Hill, Herbert Frederick, —L.D.S.I., 115, Piccadilly.
- Holford, John,* —L.D.S. Eng., 23, Wimpole Street.
- Hooper, Gordon, —L.D.S. Eng., 5, Harley Street.
- Hopewell-Smith, Arthur,\** —L.D.S., M.R.C.S. Eng., L.R.C.P. Lond. 37, Park Street.
- Hopson, Montague F.,* —L.D.S. Eng., 64, Harley Street.
- Hume, Henry Robert, 207, High Street, Kensington.
- Humphreys, Jack Edmund, —L.D.S. Eng., 80, Brook Street.
- Inder, George Joseph,* 235, King Street, Hammersmith.
- Inder, George Joseph, Jun.,* 235, King Street West, Hammersmith.
- Jackson, A. Toase, —L.D.S. Eng., 1, Hanover Square.
- Jacob, Harry Joseph, 336, King Street, Hammersmith.
- Jacobs, Jacob Michael Cecil, —L.D.S. Eng., 65, The Avenue, Ealing.
- James, Joseph, 192, Uxbridge Road.
- James, William Warwick,\* —L.D.S., M.R.C.S. Eng., L.R.C.P. Lond., 22, Wimpole Street.
- Johnson, Walter Edward, 70, Wimpole Street.
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- Jones, Wallace John, 9, Aureol Road, Kensington.
- Jones, William, 8, Shepherd's Bush Green.
- Jones, William Cadwaladr, —L.D.S.I., 4, Queen's Road, Lancaster Gate.
- Jones, William Watkin Cadwaladr,* —L.D.S. Eng., 41, Craven Hill Gardens.
- Jones, Frederick H. Lennox, 44, Granville Gardens.

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Lombardi, William, 17, Great Marlborough Street.

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LONDON, W.

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*Mummery, Stanley Parkes*,\* —L.D.S., M.R.C.S. Eng., 10, Cavendish Place.

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Newton, Frederick Harriss, —L.D.S. Eng., 30, George Street, Han-

Newton, Sydney Bullen, —L.D.S. Eng., 11, Twyford Crescent, Acton Hill.

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*Parsons, Ernest*, —L.D.S. Eng., 49, Queen Anne Street.

*Paterson, William Bromfield*,\* —L.D.S., F.R.C.S. Eng., 7A, Manchester Square.

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*Pearce, Frank James*,\* —L.D.S. Eng., 59, Queen Anne Street.

Pearse, Walter Leslie, —L.D.S. Eng., 29, Weymouth Street.

## LONDON, W.

- Pedley, Frederick Newland*,\* —L.D.S., M.R.C.S. Eng., 32, Devonshire Place, Portland Place.
- Penfold, Fred Bailey*, —L.D.S. Eng., 30, York Street, Portman Square.
- Penfold, William*, —L.D.S.I., 30, York Street, Portman Square.
- Phillips, Charles Brooking*, —L.D.S. Eng., 79, Wimpole Street, Cavendish Square.
- Pillin, Harry Linsell*,\* —L.D.S. Eng., 33, George Street, Hanover Square. [Square.]
- Pillin, Louis Burgoyne*, —L.D.S. Eng., 33, George Street, Hanover Square.
- Pollitt, G. Paton*\* —L.D.S. Eng., D.D.S. Penn., 49, Queen Anne Street.
- Pool, Ernest Ion*, 31, Lower Phillimore Place, Kensington.
- Poole, Arthur Clement*, 2, Milford Villas, Ealing.
- Powell, Matthew Pearce*,\* —L.D.S. Eng., 96, Cornwall Gardens.
- Prager, Alfred Joseph*, —L.D.S.I., 8, Portman Street, Portman Square.
- Prager, Arnold*, —L.D.S. Eng., 8, Portman Street.
- Prager, Isidore*, —L.D.S.I., 16, York Place, Portman Square. [Vale.]
- Prall, Sydney Lionel*, —L.D.S. Eng., 19, Elgin Mansions, Maida Vale.
- Preedy, Edward John*,\* —L.D.S. Eng., 1, Hanover Square.
- Preston, James Rudge*,\* —L.D.S. Eng., 7, Stratford Place. [Square.]
- Prideaux, Harry Symes*, —L.D.S. Eng., 51, Park Street, Grosvenor Street.
- Pritchard, A. C.*, —L.D.S. Eng., 23, Brook Street.
- Pritchard, John Walter*, —L.D.S.I., 14, Hanover Square.
- Rathbun, Charles John*, —L.D.S. Eng., 43, Queen Anne Street.
- Read, Walton Rix*,\* —L.D.S., M.R.C.S. Eng., L.R.C.P. Lond., 1, Portland Place.
- Reece, Thomas*, 53, Harley Street. [24, Wimpole Street.]
- Relph, Arthur Ernest*, —L.D.S., M.R.C.S. Eng., L.R.C.P. Lond., 24, Wimpole Street. [Square.]
- Relph, Herbert John*, —L.D.S., M.R.C.S. Eng., L.R.C.P. Lond., 24, Wimpole Street. [Square.]
- Richardson, Edwin Joseph*, —L.D.S. Eng., 41, Brook Street, Grosvenor Street.
- Riches, Charles John Hurry*, —L.D.S. Eng., 71, Edgware Road, Hyde Park.
- Ridout, Matthew Henry*, 78, Grafton Street, Fitzroy Square.
- Rilot, Charles Frederick*,\* —L.D.S., M.R.C.S. Eng., L.R.C.P. Lond., 22, Wimpole Street.
- Rispin, William*, —L.D.S. Eng., 10, Portman Street.
- Ritson, Joseph John*, —L.D.S.I., Claremont, Chiswick Lane.
- Robbins, Cornelius*,\* —L.D.S. Eng., 6, Stratford Place.
- Roberts, Harry Trist* —L.D.S. Eng., 77, Cambridge Gardens, North Kensington.
- Robertson, Harry Lennox*, —L.D.S. Eng., 120, Harley Street.
- Robinson, Frank*, —L.D.S.I., 4, Grosvenor Street.
- Rogers, Alfred Davis*, 140, Edgware Road.
- Rogers, Charles*, —L.D.S. Eng., 142, Harley Street.
- Rogers, Charles Claude*, —L.D.S., M.R.C.S. Eng., 142, Harley Street.



LONDON, W.

- Rogers, David de Sola Cohen, —L.D.S. Eng., c/o Miss de Sola, 93, Marylands Road, Paddington.  
 Rogers, John, 162, High Street, Notting Hill Gate. [Gate.  
 Rogers, John Percival, —L.D.S. Eng., 162, High Street, Notting Hill  
 Rogers, Joseph, —L.D.S., M.R.C.S. Eng., 16, Hanover Square.  
 Rooke, Frederick James Faulkland, —L.D.S. Eng., 11, Brook Street, Hanover Square.  
 Rooke, James Henry,\* —L.D.S.I., 11, Brook Street, Hanover Square.  
 Rose, Frederick George, —L.D.S. Eng., 59, Queen Anne Street.  
 Rose, Harry,\* —L.D.S. Eng., 59, Queen Anne Street.  
 Rose, Samuel Frank, —L.D.S. Eng., 59, Queen Anne Street.  
 Rouw, Robert Wynne,\* —L.D.S., M.R.C.S. Eng., L.R.C.P. Lond., 7, Wimpole Street.  
 Rushton, William,\* —L.D.S. Eng., 32, Harley Street.  
 Rutter, Edmund Yates, 188, Acton Lane, Chiswick.  
 Salter, Francis Septimus, 119, Mount Street.  
 Sandheim, Isaac, 223, Hammersmith Road.  
 Sansom, William Bertram,\* —L.D.S. Eng., 34, Bruton Street, Berkeley Square. [Hanover Square.  
 Sargent, Vyvian Fitzgerald, —L.D.S. Eng., 18A, Hanover Street,  
 Schelling, Carl,\* —L.D.S. Eng., 37, Cavendish Square.  
 Seccombe, Clovis Leopold, —L.D.S. Eng., 5, Duchess Street.  
 Sewill, Henry Ezekiel, —L.D.S., M.R.C.S. Eng., 9A, Cavendish Square.  
 Sewill, Joseph Sefton,\* —L.D.S., M.R.C.S. Eng., L.R.C.P. Lond., 9A, Cavendish Square.  
 Seymour, Louis Napoleon, —L.D.S. Eng., Premier House, 48, Dover Street.  
 Shefford, James E., —L.D.S.I., 144, Westbourne Grove.  
 Shelton, Frank Lyon, —L.D.S. Eng., 32, Weymouth Street.  
 Sievers, Albert Clau, 41, St. Mary Abbott's Terrace.  
 Sievers, Ferdinand, —L.D.S.I., 41, St. Mary Abbott's Terrace.  
 Skliros, Georges, 291, Regent Street. [dish Square.  
 Smale, Morton Alfred,\* —L.D.S., M.R.C.S. Eng., L.S.A., 22A, Caven-  
 Smale, Herbert,\* —L.D.S. Eng., 22A, Cavendish Square.  
 Smith, Edward, 3, Somerset Street, Portman Square. [Grove.  
 Smith, James William, —L.D.S.I., 3, Colville Road, Westbourne  
 Spencer, George Ross, —L.D.S. Eng., 23, Paddington Green.  
 Spokes, Peter Sidney,\* —L.D.S. Edin., L.D.S., M.R.C.S. Eng., 4, Port-  
 land Place.  
 Spreadborough, John, 61, Seymour Street.  
 Stephens, Bernard Maxwell, —L.D.S. Eng., 76, Grosvenor Street.  
 Stevenson, Ernest Bruce, —L.D.S. Glas., 54, Brook Street.  
 Stewart, William Henry, 180, Shirland Road, St. Peter's Park.  
 Stocken, Leslie Maury,\* —L.D.S., M.R.C.S. Eng., L.R.C.P. Lond., 55, Uxbridge Road. [34, Baker Street.  
 Strand, Alick Condell,\* —L.D.S., M.R.C.S. Eng., L.R.C.P. Lond.,



## LONDON, W.

- Sturridge, Ernest*,\* —L.D.S. Eng., 29A, Wimpole Street.  
*Styer, Matthew*, 205, North End Road, West Kensington.  
*Styer, Simeon*, 4, Old Quebec Street.  
*Sugden, William Allen*, 97, The Grove, Ealing. [Hounslow.  
*Summers, Gilbert Hamilton*, —L.D.S. Eng., 2, Lampton Road.  
*Swanson, Andrew Isles*,\* —L.D.S. Eng., 30, New Cavendish Street.  
*Sykes, Matthew Henry*, 41, Brewster Gardens, North Kensington.  
*Ta'Bois, Frederick William*, —L.D.S. Eng., 52, Harley Street.  
*Ta'Bois, Leopold*, —L.D.S. Eng., 33, Wimpole Street.  
*Thomson, David*,\* —L.D.S. Edin., 147A, Harley Street.  
*Thomson, George*,\* —L.D.S. Edin., 38, Harley Street.  
*Thomson, Murray*,\* —L.D.S. Edin., 147A, Harley Street.  
*Thorne, Edward*, —L.D.S. Eng., 31, New Cavendish Street, Cavendish Square.  
*Thrower, Edward Arthur*, 1, Rylett Crescent.  
*Tilley, James Leonard Octavius*, —L.D.S. Eng., 32, Wimpole Street.  
*Tomes, Charles Sissmore*,\*|| —L.D.S., M.R.C.S. Eng., 9, Park Crescent, Portland Place.  
*Toogood, Albert Edward*, —L.D.S. Eng., 156, Westbourne Grove.  
*Toomey, Michael Eugene*, 52, Rathbone Place.  
*Trewpy, H. W.*,\* —L.D.S. Eng., L.R.C.P., M.R.C.S., 17, George Street, Hanover Square. [ton Street.  
*Truman, Charles Edwin*, —L.D.S., M.R.C.S. Eng., 23, Old Burlington Street.  
*Turner, Joseph George*,\* —L.D.S., M.R.C.S. Eng., L.R.C.P. Lond., 12, George Street, Hanover Square. [Street.  
*Underwood, Arthur Swayne*,\* —L.D.S., M.R.C.S. Eng., 26, Wimpole Street.  
*Van der Pant, Francis Henry Morgan*,\* —L.D.S. Eng., 46, Seymour Street, Portman Square.  
*Varley, Richard*, 514, Oxford Street. [sington.  
*Wakefield, William Herbert*, 44, St. Lawrence Road, North Kensington.  
*Walke, Gilbert*, —L.D.S. Eng., 39, Cambridge Street, Hyde Park.  
*Wallace, James*, 86A, Portland Place.  
*Wallace, J. Sim*,\* —L.D.S. Eng., M.D. Glas., 30A, Wimpole Street.  
*Wallis, Elton George Whishaw*, —L.D.S. Eng., 30, Monmouth Road.  
*Wallis, George*,\* —L.D.S. Eng., 54, Wimpole Street.  
*Warrant, Thomas*, 175, Uxbridge Road, Shepherd's Bush.  
*Wartshi, J. L.*,\* —L.D.S. Eng., Lancaster House, West End Lane.  
*Webb, Deane*, 86A, Portland Place.  
*Webb, Ridley Manning*, —L.D.S. Eng., 55, The Avenue, West Ealing.  
*Wedgwood, Joseph James*, —L.D.S.I., 12, Old Burlington Street.  
*Weiss, Felix Henri*,\* —L.D.S. Eng., 7, Cavendish Square.  
*Weiss, Willoughby*,\* —L.D.S. Eng., 7, Cavendish Square.  
*Weston, Philip Henry*, 17, St. Mark's Road, Notting Hill.  
*White, William*, 254, Elgin Avenue, Maida Vale.  
*Wilde, Samuel Robson*, 819, Fulham Road.  
*Wilkes, John Hamilton*,\* —L.D.S. Eng., 38, Harley Street.

LONDON, W.

- Williams, George Arthur, —L.D.S. Eng., 17, Cavendish Place, Cavendish Square.  
 Williams, George Joseph, —L.D.S. Eng., 17, Cavendish Place, Cavendish Square. [Street.  
*Williams, Hugh Lloyd,\** —L.D.S., M.R.C.S. Eng., 2, Upper Wimpole  
*Williams, James Leon.* —L.D.S.I., 30, George Street, Hanover Square.  
 Willis, William Francis, —L.D.S. Eng., 4, Grosvenor Street.  
 Woodall, William, 77, Newman Street, Oxford Street.  
*Woodhouse, Alfred Edward Clayton,\** —L.D.S., M.R.C.S. Eng., 1, Hanover Square.  
*Woodhouse, A. J.,\** —L.D.S. Eng., 1, Hanover Square.  
*Woodhouse, Alfred James,\** —L.D.S. Eng., Hanover Square.  
*Woodruff, William Herbert,\** —L.D.S. Eng., 6, Stratford Place.  
 Woolf, Michael Yeatman,\* —L.D.S. Eng., Wimpole House, Wimpole Street.  
*Wooster, Percy William,* —L.D.S. Eng., 3, Windsor Road, Ealing.  
 Workman, Joseph, —L.D.S. Eng., 1, Duke Street, Manchester Square.  
 Wright, Alfred William, 482, Edgware Road.  
 Wright, Charles Frederick, —L.D.S. Eng., Florence Terrace, Ealing.  
 Wright, Douglas F., —L.D.S.I., 8, Cavendish Place.  
 Wyand, Edward Herbert, —L.D.S. Eng., 104, Lexham Gardens.  
*Yeatman-Woolf, M.,\** —L.D.S. Eng., Wimpole House, Wimpole Street.

LONDON, W.C.

- Abrams, Benjamin Robert, 243, Pentonville Road, King's Cross.  
 Bacon, Harold, —L.D.S. Eng., 111, Gower Street.  
*Barrett, Charles,* —L.D.S. Eng., 73, Southampton Row.  
*Blaaberg, Charles Jens,* —L.D.S. Eng., 27, Tavistock Square.  
 Boutall, George Squire, 57, Marchmont Street, Russell Square.  
 Bromley, Edward James Dark, 38, St. Martin's Lane.  
*Buckell, Clyde Westmore-Ashton,* —L.D.S. Eng., 111, Gower Street.  
 Buist, Charles Alexander Seaton, 16, Gower Street.  
*Clarence, J. H.,\** —L.D.S. Eng., 90, Gower Street.  
 Dominy, Henry Stone, 36, St. Martin's Lane.  
 Dunkin, Silas, 53, St. Martin's Lane.  
 Eskell-Paget, Harry Louis, 446, Strand.  
 Faulkner, Henry, 30, Gower Street, Bedford Square.  
 Faulkner, Henry Rawlinson, —L.D.S.I., 30, Gower Street.  
 Gould, Frederick Walter, —L.D.S. Eng., Craven House, Northumberland Avenue.  
 Harris, Hasler, 34, Bedford Square.  
 Harrison, Sydney, —L.D.S. Eng., 36, Great Russell Street.  
 Hayes, John Handford, —L.D.S.I., c/o National Bank, 180, Strand.  
 Johnson, Alfred Adolf Harold, —L.D.S. Eng., Royal Dental Hospital, Leicester Square.  
 Jones, Alexander John, —L.D.S. Eng., 129, Strand.  
 Jones, George Horatio, Great Russell Mansions, Bloomsbury.

## LONDON, W.C.

- Lucas, George John*,\* —L.D.S. Edin., 23, Northumberland Avenue.  
*Lucas, Joseph Michael Mark*, Northumberland Chambers, Northumberland Avenue.  
*Maxwell, George Neal*, 64, Winchester Street, King's Cross.  
*McDonnell, M. Joseph*, —L.D.S. Edin., 8, Chesterfield St., Kings Cross.  
*Moore, Edward William Cox*, —L.D.S.I., 1, Bloomsbury Square.  
*Morgan, Frederick John*, —L.D.S. Eng., 20, Gower Street, Bedford Square.  
*Morgan, Henry*, 10, Tavistock Place.  
*Mosely, Frederic S.*, 448, Strand.  
*Nawrocki, John*, 141, Judd Street, Euston Road.  
*Padley, Gillies*, —L.D.S. Eng., 36, Woburn Place, Russell Square.  
*Plumer, William Cork*, 60, Lamb's Conduit Street.  
*Poundall, Alfred Ben*, —L.D.S. Eng., 20, Compton Street, Brunswick Square.  
*Read, Arthur*,\*—L.D.S. Eng., 25, Woburn Square.  
*Rogers, Thomas Arnold*,\* —L.D.S., M.R.C.S. Eng., 23, Endsleigh Street, Tavistock Square.  
*Schlesinger, William Augustus*, —L.D.S. Eng., 24, Gordon Square.  
*Simmons, James Joseph*,\* —L.D.S. Eng., 8, Endsleigh Street, Tavistock Square. [Tavistock Square.  
*Simmons, Thomas Pybus*, —L.D.S. Eng., 8, Endsleigh Street,  
*Sleep, Alfred*, 16, Gower Street.  
*Slipper, John Shipley*, 37, High Holborn.  
*Stower, Alexander Riddle*, 80, Shaftesbury Avenue.  
*Stuck, Thomas James*, —L.D.S. Eng., 134, Gower Street.  
*Taylor, Edwin Henry Pascal*, —L.D.S. Eng., 28, Store Street, Bedford Square.  
*Taylor, W. J.*, —L.D.S.I., 28 Store Street.  
*Torpey, George*, 120, Gower Street.  
*Torpey, Herbert James*, —L.D.S. Eng., 120, Gower Street.  
*Trick, Walter Henry*, —L.D.S. Eng., 108, New Oxford Street.  
*Trick, William Borrow*, 108, New Oxford Street. [bury Square.  
*Vaughan, Thomas Herbert*, —L.D.S. Eng., 16, Hart Street, Blooms-  
*Wheeler, James W.*, 20, Compton Street, Brunswick Square.  
*Wrighton, Thomas Henry Garland*,\* —L.D.S.I. and Eng., 7, Blooms-  
bury Square.

## LONDONDERRY. Pop. 33,200.

- Craig, David*, —L.D.S.I., 12, Queen Street.  
*Gillies, John Blakeney*, —L.D.S. Eng., 6, Bayview Terrace.  
*Hurst, Joseph Alfred*, —L.D.S.I., 20, Great James Street.  
*Kennedy, Marshall*, —L.D.S. Eng., 22, Great James Street.  
*Minniece, Thomas*, —L.D.S.I., 22, Pump Street.  
*Smyth, Samuel*, 30, Shipquay Street.  
*Watson, H. C.*, —L.D.S. Edin., Harbour View, Coleraine.  
*Williams, Herbert*,\* —L.D.S. Eng., 32, Shipquay Street.

LONG EATON. Pop. 13,045.

Gelsthorpe, James.

LONGRIDGE. Pop. 4,304.

Bennett, John William, Stoneleigh, Dutton.

LONGTON. Pop. 35,815.

Russon, Samuel Tonks, 106, Cromartie Street.

Shields, Joseph Harold, —L.D.S. Eng., 100, Trentham Road.

Skae, John Walter, —L.D.S. Eng., 67, Trentham Road.

LOUGHBOROUGH. Pop. 18,195.

Gibson, Reuben Leonard, 74, Ashby Road.

Hutchison, William, —L.D.S. Glas., Baxter Gate.

*Storey, George William*, —L.D.S. Eng., 14, High Street.

Vinsen, Harry Frederick, 9, Nottingham Road.

LOUTH (LINCS.). Pop. 18,506.

Clarke, Settrington Francis, 8, Ugate.

LOWESTOFT. Pop. 23,345.

*Britten, R. V.*, —L.D.S. Eng., 46, Marine Parade.

*Clarke, George Ernest*, —L.D.S.I., 129, London Road.

Horne, Ernest, 101, London Road.

Rayson, George Knights, 2, Commercial Road.

Stringfield, William, —L.D.S.I., St. Cyres, London Road.

Targett, Frederick William, —L.D.S. Eng., 63, London Road.

LUDLOW. Pop. 4,552.

Beaumont, Frederick Charles, —L.D.S. Eng., Castle Square.

Woodhouse, George, 45, Bull Ring.

LUTON. Pop. 36,404.

Bower, Ernest David, —L.D.S.I., 30, Wellington Street.

Fleming, Robert Melvin, 37, George Street. [Dunstable Road.

Graves-Morris, Herbert William, —L.D.S. Eng., 8, Victoria Villas,

*Wardill, George Jackson*, —L.D.S.I., 25, Park Street West.

LUTTERWORTH. Pop. 1,734.

Buswell, Arthur, High Street.

LYDNEY. Pop. 4,200.

Hathaway, Frederick Henry.

LYMM. Pop. 4,707.

Evans, Isaac Henry, Market Cross.

Jackson, William Robert, Beechlawn.

LYMINGTON. Pop. 4,550.

*White, Richard Wentworth*,\* —L.D.S. Eng., M.R.C.S., Ashdon House.

## LYNTON. Pop. 1,641.

Davis, Joseph Bernard.

## LYTHAM. Pop. 7,685.

Crozier, Robert.

Jackson, Chas. Hy., —L.D.S. Glas., Rauxborough House, Park St.

*Jackson, Thomas,*|| Rauxborough House, Park Street.

## MACCLESFIELD. Pop. 34,635.

*Bates, William,\**|| —L.D.S.I., 30, Park Green.

Cooper, John Duncalf, 8, Chestergate.

Mallard, Sidney Herbert, 13, St. Paul's Terrace.

Pannell, Hy. George, —L.D.S. Eng., 2, Park Street.

## MACHYNLLETH. Pop. 2,038.

Rees, Edward, Medical Hall.

## MAIDENHEAD. Pop. 12,980.

Pallant, Arthur,\* —L.D.S.I., Orchard House, Castle Hill.

*Sargood, G. F.*, Westmorland House, Westmorland Road.

Starling, Alfred, Clebane, Cookham Road.

Walker, John Wesley, 4, Craufurd Rise.

Wardle, James, 97, High Street.

## MAIDSTONE. Pop. 33,516.

*Anderson, Albert Edward*, —L.D.S. Glas., 9, Tonbridge Road.

Bunter, George Bullock, 4, Clarendon Place.

Hinton, Edwin Henry, 67, King Street.

*Reatchlous, H. H.*, —L.D.S. Eng., 2, Bower Terrace.

*Rogers, George Henry James*, 55, King Street.

Waller, Thomas John, The Broadway, West Borough.

## MALDON. Pop. 5,564.

Crick, George Edward, Old Chantry House.

Neill, John William, 45, Wawtz Road.

Pechey, Thomas Pollard, 54, High Street.

## MALTON. Pop. 4,758.

Rhodes, F. J., —L.D.S. Edin., St. Michael's House.

## MALVERN. Pop. 16,449.

Holme, George Jackson, —L.D.S.I., Enderley Avenue Road.

## MANCHESTER. Pop. 543,969.

Allin, John, —L.D.S.I., 428, Stretford Road.

Armitage, Harry Austin, —L.D.S. Glas., 17, St. Ann's Square.

Ashworth, Henry, 10, Lily Hill Street, Whitefield, near Manchester.

Atkinson, Ralph, 43, Grafton Street.

Badcock, C. E., —L.D.S. Eng., Western House, Fallowfield.

Banks, Edward, Pendlebury, near Manchester.

*Barlow, George William,*|| —L.D.S. Eng., 242, Oxford Road.

MANCHESTER.

- Bell, Joseph, 113, London Road.  
 Berry, William, 710, Oldham Road, Newton Heath. [sight.  
*Besford, Harry Newton*, || —L.D.S. Eng., 422, Stockport Road, Long-  
 Betts, Philip, 3, Lime Grove, Oxford Street.  
 Beyer, Ernst Fritz Bertram, —L.D.S. Eng., 31, Ardwick Green, North.  
 Booth, William Grounds, 30, Swan Street.  
 Brook, Edward, 243, Bury New Road, Whitefield.  
 Broughton, George, Green Bank, Patricroft.  
 Burns, Percy Edwin, —L.D.S. Eng., 10, Grove Street, Ardwick Green.  
 Bushby, Thomas, 41, Stockport Road.  
*Campion, George Goring*,\* || —L.D.S. Eng., 264, Oxford Road.  
 Campion, Henry,\* || —M.R.C.S., 264, Oxford Road.  
 Carter, William, 2, Union Terrace, Cheetham Hill.  
 Church, William Worthington, Alderley Edge, near Manchester.  
 Clarke, William, 178, Moorside Road, Swinton.  
 Clay, Abraham, 96, Broughton Road, Pendleton.  
 Clements, William Alexander, —L.D.S. Eng., 31, Mansfield Chambers,  
 St. Ann's Square.  
 Clubb, Charles Henry, 30, Moss Lane West, Brooks's Bar.  
 Cockcroft, Richard, Hebden Bridge, near Manchester.  
 Cocker, James D., 159, Butler Street.  
 Cockshott, Joseph, 77, Great Ducie Street. [Fallowfield.  
*Coleman, Henry Alfred*, || —L.D.S. Edin., 200, Wilmslow Road,  
*Collett, Edward Pyemont*,\* || —L.D.S. Eng., 8, St. John Street, Deans-  
 gate.  
 Copping, George Joseph, 18, Stockport Road.  
*Dalby, Charles Burkitt*, || —L.D.S. Eng., 242, Oxford Road.  
*Derwent, A. H.*, || —L.D.S. Eng., Grosvenor House, Wilbraham Road.  
*Doran, S. S.*, || —L.D.S. Eng., 53, Wilmslow Road, Withington.  
 Doran, F. S., —L.D.S. Eng., 53, Wilmslow Road, Withington.  
*Dougan, William*, || —L.D.S.I., 276, Oxford Road. [Oxford Road.  
*Dreschfeld, Henry Theodore*, || —L.D.S. Edin., 23, St. Anne Street,  
 Drinkwater, George, Patricroft.  
 Dunkerley, John Whiteley, || —L.D.S.I., 262, Oxford Road.  
*Edward, John Hutchison*, —L.D.S.I., 117, Stockport Road.  
 Edwards, George, 416, Stockport Road.  
 Epstein, Edward, 102, Cheetham Hill Road.  
 Evans, Thomas, 127, Whit Lane, Pendleton.  
 Farwell, Edward, —L.D.S. Eng., 3, Bangor Street, Hulme.  
 Gilbert, Joseph Anthony, 234, Oldham Road.  
 Halkyard, James, 2, Bradford Street, Ancoats.  
 Hargreaves, Edward Morris, 14, Shakespeare Street, Ardwick.  
 Hargreaves, Thomas, 5, Grosvenor Street, Piccadilly.  
 Harlock, Sidney, —L.D.S. Eng., 52, Lapwing Lane, West Didsbury.  
 Harrop, John William.  
 Hay, Alex., 36, Seedley Road, Pendleton.  
*Headridge, David*, || —L.D.S. Eng., 323, Oxford Street.



## MANCHESTER.

- Headridge, John Parsons*, || —L.D.S. Eng., 16, St. Anne's Place.  
 Heap, Henry, 568, Gorton Lane, Gorton.  
 Hewson, James, 37, Stockport Road.  
 Hibbert, John Edwin, Chester Place, 44, Broad Street, Pendleton.  
 Hindle, Thomas Robert, 25, Camp Street, Lower Broughton.  
 Holland, Edwin. [Aytoun Street.  
*Hooton, William Arthur*, || —L.D.S. Eng., L.R.C.P., M.R.C.S., 6,  
*Houghton, Edwin*, || —L.D.S.I., 242, Oxford Road.  
 Howard, William, 55, Redbank.  
*Hughes, Arthur*, || —L.D.S. Eng., 26, King Street.  
*Hughes, Geoffrey*, || —L.D.S. Eng., 19, St. John Street.  
 Hunt, William Charles, 169, Tipping Street, Ardwick.  
 Ideson, William Henry, 367, Eccles New Road.  
 Jackson, Barnet Edward, Palace Buildings, Harpurhey.  
 Jackson, Jeremiah, 395, Rochdale Road.  
 Jones, John Henry, —L.D.S.I., The Laburnums, Sibson Road, Sale.  
*Jones, William Henry*, —L.D.S. Eng., Birch View, 93, Stockport Rd.,  
 Levenshulme.  
 Kersh, Samuel, —L.D.S. Eng., 167, Cheetham Hill Road.  
 Kirkpatrick, Thomas, 29, New Bridge Street.  
 Kloet, Richard, —L.D.S.I., 10, St. Ann's Square.  
 Latham, Ernest, —L.D.S. Glas., 94, Oxford Street, All Saints.  
 Leadbetter, Charles Samuel, 61, Great Ducie Street, Victoria Station.  
 Leech, Robert, 34, Upper Duke Street. [Lower Broughton.  
 Leeming, Matthew Rodway, —L.D.S. Edin., 98, Great Clowes Street,  
 Llewellyn, Robert Jones, —L.D.S., F.P.S.G., 12, Wilmslow Road,  
 Rusholme. [Street.  
*Linnell, Percy Allison*, || —L.D.S. Eng., Selden Chambers, 62, King  
 Long, Edwin George, —L.D.S. Eng., 6, Aytoun Street.  
 Mackay, David, 7, Eaton Road, Crumpsall.  
 Mackie, William Owen, 83, Great Clowes Street, Lower Broughton.  
 Maddox, Alfred Charles, 213, Waterloo Road, Cheetham.  
*Mahoney, John*, —L.D.S. Eng., 159, Chorlton Road, Brook's Bar.  
 Marsden, William, 89, Every Street.  
*Mason, Edgar*, —L.D.S. Eng., 124, Alexandra Road.  
 Massey, John, 280, Deansgate.  
 Massingham, Hugh Mortimer, Royal Infirmary. [Rusholme.  
*Masters, Frederick William*, || —L.D.S. Edin., Wilmslow Road,  
 Masters, John —L.D.S.I., Edin. and Glas., 258, Oxford Road.  
*Mathews, John Hilditch*, || —L.D.S. Eng., 178, Oxford Street.  
 Mayor, David, 83, Chancery Lane, Ardwick.  
*Meek, George Herbert*, —L.D.S. Eng., 17, Palatine Road, Withington.  
 Mitchell, Dalby Ransom, 4, Hastings Street.  
*Minshall, F. W.*, —L.D.S.I., 6, Hulme Place.  
*Morley, Charles Reginald*, || —L.D.S. Eng., 327, Oxford Road.  
*Nicholson, W.*, —L.D.S. Eng., 96, Acomb Street.  
*Norman, Harry William*, || —L.D.S. Eng., 264, Oxford Road.

MANCHESTER.

- Oclee, Frederick Henry, 532, Stockport Road.  
*Peace, Alfred*, || Brunswick Terrace, Broad Street, Pendleton.  
*Pearse, Arthur Samuel*, || —L.D.S. Eng., 19, St. John Street.  
 Phillips, Frederick John, 6c, Chorlton Road.  
*Planck, Henry*, || —L.D.S.I., 14, St. Ann's Square.  
 Platt, George Samuel, 134, Bury New Road, Whitefield.  
 Pratt, George William, 44, Stretford Road, Hulme. [Road, Sale.  
 Preston, Charles Henry, —L.D.S. Eng., M.D., F.R.C.S., 21, Washway  
 Rains, Robert, The Elms, East Road, Stockport Road.  
 Ramsay, Alexander Robertson, 60, City Road.  
 Ransom, Denis George Henry.  
 Regan, Edward J., 5, Stretford Road.  
 Renshaw, John Peter, 1, Stockport Road. [Salford.  
 Rodway, Barron John, || —L.D.S. Eng., 6, Hulme Place, The Crescent,  
 Rodway, James Henry, || —L.D.S. Eng., 6, Hulme Place, The Crescent,  
 Salford.  
 Saul, Barnett Bendet, —L.D.S. Eng., 42, Wilmslow Road, Withington.  
 Saunders, Frederick, Longsight.  
 Schofield, Edmund, —L.D.S.I., Scout Bottom, Newchurch.  
*Sherratt, Albert Edwin*, || —L.D.S. Eng., 49, Wilbraham Road,  
 C.-cum-H.  
 Sherratt, Benjamin, 283, Oxford Road.  
 Sherratt, Thomas, 109, Clyde Road, West Didsbury.  
*Sherratt, Thomas Edward*, || —L.D.S. Eng., 26, King Street.  
*Simms, William*,\* || —L.D.S.I., Cromwell Chambers, 38, Deansgate.  
 Smale, Charles Henry, || —L.D.S. Eng., 118, Oxford Street.  
 Smale, Henry Charles, —L.D.S. Eng., 118, Oxford Street.  
 Smart, Astley Millard, 128, Hyde Road.  
 Smith, Charles, —L.D.S.I., 739, Rochdale Road.  
 Smith, Charles William, L.D.S. Eng., 739, Rochdale Road.  
 Smith, Ebenezer, 92, Bradford Street.  
 Smithard, Charles Lawson.  
 Smithard, Walter, —L.D.S.I., Regent Chambers, 180, Deansgate.  
 Smithard, W. R. Normani,\* —L.D.S. Eng., M.B., Regent Chambers,  
 100, Deansgate.  
*Stephenson, John*, || —L.D.S. Eng., Western House, Fallowfield.  
 Sutcliffe, Charles Henry, 95, Lower Moss Lane.  
 Swindell, George Jonas, 4, Sherwood Street, Garratt Street.  
 Swinn, Charles, 106, Boston Street.  
*Tanner, Thomas*, || —L.D.S. Eng., 42, Oxford Street.  
 Taylor, William.  
 Teasdale, Charles, 197, Bradford Road.  
 Turner, William, 134, Broad Street, Pendleton.  
 Twemlow, Richard, 53, Albert Road, Longsight.  
 Van Gelderen, John Adolph, 110, Yarburgh Street, Alexandra Park.  
*Walker, Frank*, —L.D.S. Eng., 45, Cross Street.  
 Walker, Roger, —L.D.S.I., Alliston, Crofts Bank Road.

## MANCHESTER.

Watts, Francis, 346, Oxford Street, C. on M.  
Wealthall, Thomas, 3, Norfolk Terrace, Upper Moss Lane.  
West, Rowland, 49, Upper Brook Street. [King Street.  
*Whittaker, George Oldham,\**|| — L.D.S. Eng., King's Chambers, 26,  
Whitworth, James William, — L.D.S. Eng., 215, Waterloo Road.  
Wilks, Jno., 1, Alma Road, Levenshulme.  
Williams, James Boden, 42, Brook Street, Chorlton-on-Medlock.  
Williams, John Ashurst, Park Holme, Queen's Park.  
Wylde, Ellis, 1A, Chorlton Road.

## MANOR PARK. Pop. 5,300.

Hose, Richard Adolphus.

## MANSFIELD. Pop. 15,920.

*Renshaw, Elisha*, — L.D.S.I., 20, Church Street.

## MARGATE. Pop. 23,057.

*Bailey-King, Francis Henry*, — L.D.S. Eng., 24, Cecil Square.  
Blomfield, Edgar Athelstan, — L.D.S. Eng., Corton, Northdown  
Road, Cliftonville.  
Ray, William Herbert, 12, Cecil Square.  
*Webster, Percy Lawrance,\** — L.D.S., M.R.C.S. Eng., L.R.C.P. Lond.,  
23, Dalby Square, Cliftonville.

## MARKET DEEPING. Pop. 1,500.

Linnell, George.

## MARKET HARBOROUGH. Pop. 7,735.

Bragg, William Bragg.  
Griffin, Joseph Thomas, 1, The Square.  
*Wood, C*, — L.D.S. Edin., 41, St. Mary's Road.

## MARKINCH. Pop. 1,500.

Robertson, Andrew, Glass Street.

## MARYPORT. Pop. 11,896.

Cockton, John, Kirkborough.  
Dixon, John, 7, Curzon Street.  
Skelton, Thomas, 41, High Street.  
Smith, James Malcolm, 60, High Street.

## MASBROUGH. Pop. 7,632.

Collinson, William, Red House.

## MATLOCK. Pop. 5,980.

Brooksbank, Charles James, Matlock Bank.  
Heathcote, Henry Charles, Winster.  
Nicklinson, Thomas, Cromford, Matlock Bath.  
*Wright, W H.*, — L.D.S.I., Glenholme, Dale Road, Matlock Bridge.

MELBOURN. Pop. 3,580.

Armson, William, Derby Road.

MELROSE. Pop. 2,198.

Deans, David Dunlop, High Street.

MELTON MOWBRAY. Pop. 7,455.

Jackson, Matthew, —L.D.S. Eng., 12, High Street.

MERCHISTON.

Scott, George Francis, 189, Bruntsfield Place.

MERE, WILTS. Pop. 1,976.

Bracher, Edwin

MERTHYR TYDVIL. Pop. 69,227.

*Gay, Edwin Roberts*, 55, High Street.

Harris, Evan William, 128, High Street.

*Howitt, Herbert George*, —L.D.S. Eng., 26, Victoria Street.

Llewellyn, Richard, 148, High Street.

*Musgrove, Edward Hugh*, —L.D.S. Eng., 55, High Street.

Wills, Vincent Andover, George Town.

MIDHURST. Pop. 1,650.

*Wright, Joseph*, York House.

MIDDLESBROUGH-ON-TEES. Pop. 91,317

Anderson, H. A., 9, Grange Road, W.

Binns, Edmund, —L.D.S. Eng., 23, Grange Road, W.

*Binns, Herbert Theodore*, —L.D.S. Eng., 23, Grange Road, W.

Evans, Edward Horatio, 7, Ashburton Terrace, Linthorpe Road.

Hall, Robert, 35, Kensington Road.

Harrington, Philip John.

Hemings, Alfred, —L.D.S.I.

Hülsmann, William, 46, Newport Road.

*Inglis, J. Park*, —L.D.S. Edin., 1, Grange Road, W. [Ormesby.

Lavryman, Alfred, —L.D.S. Edin., Oakdene, Oakfield Road, North

Robson, James Crosby, 37, Linthorpe Road.

Salt, George Henry, —L.D.S.I., Newport Road.

Taylor, Henry Hylton.

Whatford, William, 100, Grange Road, E.

MONMOUTH. Pop. 5,090.

Key, Hobson, Agincourt Square.

MONTROSE. Pop. 12,400.

*Dykes, Robert Colville*, —L.D.S. Eng., 8, Panmure Terrace.

Phin, Alexander, 6, Castle Place.

Walker, James Stewart, 140, High Street.

MORECAMBE. Pop. 11,798.

Whitaker, Thomas, —L.D.S. Eng., Erving Terrace, W.E.

## MORPETH. Pop. 6,158.

Turner, John, 17, Hood Street.

## MORTIMER (BERKS). Pop. 1,570.

Colbran, Coningsby Leslie, —L.D.S. Eng., Hazelmere.

## MOSSLEY. Pop. 13,452.

Jones, Henry, Westleigh.

Kershaw, James Frederick, Stamford Road.

## MYTHOLMROYD. Pop. 4,163.

Greenwood, Fred, New Road.

## NAAS. Pop. 4,500.

Carter, Robert William, Main Street.

## NAIRN. Pop. 5,089.

Miller, Alexander Urquhart, Sandy Lodge.

## NANTWICH. Pop. 7,722.

Vaughan, John, 1, Cheshire Street, Audlem.

## NEATH (S. WALES). Pop. 13,732.

Davis, Edward David, —L.D.S. Eng., Llwynderi.

Hibbert, Walter Griffiths, New Street Square.

Isaac, James Griffith, 15, New Street.

## NELSON. Pop. 32,816.

Jackson & Son, Carr Road.

Ludbrook, Stephen Percy, —L.D.S. Eng., 9, Carr Road.

Nowell, Richard, 129, Leeds Road.

## NENAGH. Pop. 5,420.

*Powell, J. W.*, —L.D.S. Eng., 33, Barrack Street.

## NEWARK. Pop. 14,455.

King, Richard Francis Henry, —L.D.S. Eng., 12, Appleton Gate.

Robinson, Thomas, —L.D.S. Eng., 16, Castle Gate.

Williams, George Edward Bowden, 12, Appleton Gate.

## NEW BARNET. Pop. 10,094. [See London.]

*Gabell, Wilfrid William*,\* —L.D.S. Eng., Chiltern Villa, Station Road.

Young, Robert Fisher.

## NEW BROMPTON. Pop. 18,980.

Saffery, William George, 67, Duncan Road.

Stooke, Arthur, —L.D.S.I., 166, High Street.

## NEWBURY. Pop. 11,061.

Hill, Edward, 2, Northbrook Street.

*Larbalestier, John Henry*, —L.D.S. Edin., Bridge House.

*Mallett, Gilbert*,\* 28, Bartholomew Street.

Pratt, Thomas Henry, 154, Bartholomew Street.

*Read, Lawrence*, —L.D.S. Eng., 8, Porchester Road.

Savage, Edward George, Market Place.

NEWCASTLE-ON-TYNE. Pop. 214,803.

- Ambrosioni, Francis Angelo, —L.D.S. Eng., 6, Jesmond Terrace,  
Barras Bridge.
- Barkshire, Frank*, §\* —L.D.S. Eng., 10, Jesmond Road.
- Black, William Brown*, §\* —L.D.S. Edin., 36, Rothbury Terrace.
- Bolan, John*, \* —L.D.S. Edin., 9, Claremont Place.
- Brumwell, William, 113, Westgate Road.
- Campbell, Thomas Charles, 9, Granger Street.
- Carr, John Robert, §\* —L.D.S. Edin., 7, Saville Row.
- Carr, Ralph*, §\* —L.D.S. Edin., 3, St. Mary's Terrace. [Ellison Place.
- Coltman, James*, §\* —L.D.S. Edin., Redthorpe, Heaton Road, and 13,
- Daniels, John William*, §\* —L.D.S. Edin., 13, Ellison Place.
- Dean, Edward, 86, Copland Terrace, Shieldfield.
- De Lacey, Robert Charles, —L.D.S.I., 6, Eldon Square.
- Douglass, F., \* —L.D.S. Edin., 2, Fernwood Road.
- Dunn, James, 360, Scotswood Road.
- Elliott, Richard, 2, Nun Street.
- Elliott, Frederick Charles, --L.D.S. Edin., 20, Heaton Road, Heaton.
- Fogg, Ernest, §\* —L.D.S. Eng., 58, Jesmond Road.
- Fothergill, Edward*, \* —L.D.S. Eng., 4, Fenham Terrace.
- Haggarty, Thomas Roger*, §\* —L.D.S. Glas., 40, Heaton Road.
- Harding, Edward, 483, Walker Road.
- Jameson, Alfred*, §\* —L.D.S. Edin., 12, Windsor Crescent.
- Jameson, James T.* † §\* —L.D.S. Edin., 12, Windsor Crescent.
- Leech, Alfred Ernest, —L.D.S. Edin., 14, Guilford Place, Heaton.
- Lightfoot, Charles Albert, —L.D.S. Edin., 59, Westmorland Road.
- Lotinger, Carl*, §\* —L.D.S. Edin., 50, Jesmond Road.
- Mackie, David*, §\* —L.D.S. Eng., 46, Jesmond Road.
- Mackinlay, N. B.*, \* —L.D.S. Edin., 147, Barras Bridge.
- Markham, Henry, 16, Grainger Street.
- Markham, Leonard Montgomery, —L.D.S. Eng., 9, Eldon Square.
- Markham, Robert Lacey, —L.D.S.I., 9, Eldon Square.
- Meikle, William, 17, Shields Road West.
- Moody, G. J., 47, Highbury.
- Moon, William Draper*, \* —L.D.S. Eng., 8, Jesmond Road.
- Pittuck, Thomas Alfred, 20, Saville Row.
- Richardson, E. Y., \* —L.D.S. Edin., Graingerville North.
- Robinson, George, 21, Northumberland Court.
- Robinson, John Francis, 21, Northumberland Court.
- Routledge, Charles Linneus*, §\* —L.D.S. Edin., 62, Jesmond Road.
- Routledge, Walter Graham*, §\* —L.D.S. Edin., 5, Belgrave Parade.
- Smith, James Upton, —L.D.S. Edin., Victoria Villa, Westmorland Rd.
- Smith, William Theodore, 19, Eldon Square.
- Tinn, Charles William, 42, New Bridge Street.
- Turnbull, Robert Atkinson*, —L.D.S.I., 6, Jesmond Terrace.
- Urwin, Thomas Huddlestone, 24, Ridley Place.
- Urwin, Thomas Huddlestone, Jun., 24, Ridley Place.



Van Gelderen, John Adolph, —L.D.S. Edin., 52, Blackett Street.  
*Walkinshaw, Thomas Roger Dove*, §\* —L.D.S. Edin., 1, Belgrave  
 Parade.

Watson, John, 34, Grainger Street.

Watson, Thomas, 52, Blackett Street.

#### NEWCASTLE-UNDER-LYME. Pop. 19,914.

*Burton, Percy*, —L.D.S. Eng., Northcote House.

*Elmitt, Samuel Frank*, || —L.D.S. Glas., 10, King Street.

Shields, John Lewis, —L.D.S. Eng., Nelson Place.

#### NEW DEER.

Thomson, George.

#### NEWENT. Pop. 1,083.

Whittles, Henry, Broad Square.

#### NEW MALDEN. Pop. 5,560.

*Peck, A. G.*, —L.D.S. Eng., Walpole Lodge, Malden Road.

Harper, J.,\* —L.D.S. Eng., L.R.C.P., M.R.C.S., Chiltern Lodge.

#### NEW WANSTAD (ESSEX).

Chandler, Horace Stanley, —L.D.S. Eng., Oakhurst.

#### NEWMAINS (LANARK). Pop. 2,800.

McFarlane, James W., —L.D.S. Glas., Garfield Place.

#### NEWNHAM-ON-SEVERN. Pop. 1,184.

Hardeman, John.

#### NEWPORT (MON.) Pop. 67,290.

Broadlick, Alfred Trevone, 47, Morden Road.

Coke, Richard Sweett, 84, Commercial Road.

Davis, Eleazar, 29, Commercial Street.

*Evans, Albert John Gear*, —L.D.S. Eng., 23, Bridge Street.

Giles, William Egbert.

Griffiths, Henry William, —L.D.S.I., 55, Bridge Street.

Lea, Frederick James, Malpas Road.

*Little, Edward*, —L.D.S.I., 151, Dock Street.

Smith, Albert, 5, High Street.

Smith, Alfred Henry, —L.D.S. Eng., 28, Bridge Street.

*White, Graham William*, —L.D.S.I., 151, Dock Street.

*Williams, Tom Gill*, —L.D.S. Eng., 32, Stow Hill.

Young, John, 20, High Street.

#### NEWQUAY. Pop. 2,935.

Robinson, Charles Cecil,\* —L.D.S. Eng., Streatham House, 9,  
 Grosvenor Terrace.

#### NEWRY. Pop. 13,212.

*Biggs, John Gordon*, —L.D.S. Glas., Marcus Square.

*Connor, George Washington*, —L.D.S. Eng., L.R.C.P., M.R.C.S., 77,  
 Hill Street.

NEWTON ABBOT. Pop. 12,518.

*Hemsted, Frederick*, —L.D.S. Eng., Devon Villa, St. Paul's Road.  
*Segar, Alfred John*, —L.D.S. Eng., Ringslade.

NEWTON-LE-WILLOWS. Pop. 10,099.

Peake, Arthur, Queen Street, Earlestown.

NEWTOWN. Pop. 6,500.

Kershaw, Clement Maguire, Croesawdy.

NORBITON. Pop. 6,600.

Greenwood, John Herbert, —L.D.S. Eng., 8, Park Road.

NORTHALLERTON. Pop. 4,500.

Squince, John Abbott.

*Wilson, F. A.*,\* —L.D.S. Eng., South End.

NORTHAMPTON. Pop. 87,021.

Blunt, John Henry, 2, Parade.

Bull, Ernest Rogers, —L.D.S. Eng., 13, Guildhall Road.

Ford, John William, 63, Mare Fair.

Goddard, Henry Heygate, —L.D.S. Eng., Melbourne Crescent.

Gray, Charles Stones, 2, Kingsley Park Terrace.

Harris, Joseph, 68, Wellingborough Road.

Hiam, Frank, 10, Newland.

Hull, Charles Septimus,\* —L.D.S. Glas., 98, Abington Street.

Lucas, William, 2, Talbot Road, Kettering Road.

Mathews, A. Llewelyn, —L.D.S. Eng., Duston Chantry.

Mosely, Harry Benjamin, —L.D.S.I., 8, The Drapery.

*Swannell, Richard Pancoust*, —L.D.S. Eng., 13, Guildhall Road.

Whiting, Charles George, 61, Sheep Street.

NORTHENDEN. Pop. 2,127.

Walton, Henry, Palatine Road.

NORTH SHIELDS. Pop. 5,737.

Brumwell, Andrew William Kinnear,§ —L.D.S. Edin., 24, Northumberland Square.

*Fox, Peter Edward*, 20, North End Square

Rogers, James Isaac, 37, Borough Road.

NORTHWICH. Pop. 17,609.

*Bailey, F. N.*,|| Glenlee.

Bailey, Frederick William, —L.D.S. Eng., Glenlee.

Fox, Herbert James, —L.D.S. Eng., 38, Prince of Wales Road.

Hillman, Robert Charles, —L.D.S. Edin., Witton House, Witton Street.

NORWICH. Pop. 113,266.

Capon, Edward Herbert, 33, St. Giles's Street.

Capon, Jack Cecil, —L.D.S. Eng., 33, St. Giles's Street.

*Gillett, Richard William*, —L.D.S. Eng., 42, Prince of Wales Road.

Griffin, John, 38, Prince of Wales Road.

*Harcourt, Bosworth Walter*, 39, St. Giles's Street.  
*Littleboy, Arthur Lindley* 44, St. Giles's Street.  
*Mackley, George William*, 53, St. Giles's Street.  
*Mackley, Herbert Edwin*, —L.D.S. Eng., 74, Upper St. Giles's Street.  
*Mackley, Thomas Joseph*, 74, Upper St. Giles's Street.  
*Martin, Benjamin Mark*, —L.D.S. Edin., 39, St. Giles's Street.  
*Poock, John Alfred*,\* —L.D.S.I., Erpingham House, Tombland.  
*Sears, Herbert Rayson*, —L.D.S. Eng., Erpingham House, Tombland.  
*Spain, John Sedgewick*, —L.D.S. Edin., 34, Prince of Wales Road.  
*Thompson, Charles James*, 35, St. Andrew's, Broad Street.  
*Turner, Henry Watson*, —L.D.S. Eng., L.R.C.P., M.R.C.S., 52, Prince of Wales Road.  
*Watson, James Edward Henry*, Rose Corner.  
*White, Henry Freeman*,\* —L.D.S. Eng., 26, St. Giles's Street.  
*Williams, James Herbert*, —L.D.S. Eng., 34, Prince of Wales Road.  
*Willis, Charles Stovel*, —L.D.S. Eng., 26, St. Giles's Street.

## NOTTINGHAM. Pop. 239,385.

*Adams, Henry*, —L.D.S. Glas., 19, Shakespeare Street.  
*Attenborough, Arthur Goodall*, —L.D.S. Glas., 213, Arkwright Street.  
*Bailey, Samuel*, 1, Promenade, Robin Hood Street.  
*Bellaby, Francis*, 60 and 62, Goldsmith Street.  
*Bellaby, Francis Montagu FitzWalter*, —L.D.S. Eng., Borough Chambers, King Street.  
*Bellaby, Frederick*, —L.D.S., M.R.C.S. Eng., 2, Park Row.  
*Bellaby, Goodman Wood*, —L.D.S.I., 2, Park Row.  
*Blandy, Henry*, —L.D.S.I. Glas., Edin., 1, Postern Street.  
*Cave, Urban Edward*, —L.D.S. Eng., 22, Regent Street.  
*Chater, Frederic*, 12, North Church Street, Shakespeare Street.  
*Clarke, Henry Smith*, 1, Clarendon Street.  
*Clarke, James John Gordon Webster*, 46, Bridlesmith Gate.  
*Cousens, John Stather*, 37, Beech Avenue, New Basford. [Road.  
*Creswell, Kreisa*, 8, Chaucer Terrace, Harlaxton Street, Woodborough  
*Cundy, George James*, —L.D.S.I., 53, Sherwood Street. [Place.  
*Dadley, Isaac Jeffries*, Market Chambers, South Parade, Market  
*Dennis, Oliver Aldred*, —L.D.S.I., 114, Goldsmith Street.  
*Elstob, Harry George*, —L.D.S. Eng., 20, Shakespeare Street.  
*Goddard, Henry Ernest*,\* —L.D.S. Glas., D.D.S. Penn., Oxford Street.  
*Goddard, William*, —L.D.S. Eng., 2, Oxford Street.  
*Harris, George William*, —L.D.S. Glas., 53, Goldsmith Street.  
*Heath, R. H.*, —L.D.S. Eng., 12, Oxford Street.  
*Hepburn, Duncan Stuart*, —L.D.S. Eng., 9, Wellington Circus.  
*Johnson, Samuel*, 21, Friar Lane.  
*Johnstone, James*, —L.D.S. Edin., 52, Shakespeare Street.  
*Mallet, Thomas Charles*, 4, Park Row.  
*Marriott, Edward Dean*, 90, St. Ann's Well Road.  
*Marriott, Thomas William*, 31A, Carrington Street.  
*Pike, John*.

Pittuck, William Williams, —L.D.S. Edin., Grove House, 5, Peel St.  
*Porter, Frank Constable*,\* —L.D.S. Eng., M.R.C.S., L.R.C.P. Lond.,  
 D.D.S. Phil., 12, Oxford Street.  
 Ridgard, Charles, 72, Alfreton Road.  
 Robinson, George Edward James Antoine, —L.D.S. Eng., M.R.C.S.,  
 L.R.C.P. Lond., M.B., 22, Hollaton Street.  
 Salmon, Henry Wilson, 25, Bilbie Street.  
 Shaw, James, 22, Sherwood Street.  
 Shepperley, George, 58, Long Row.  
 Shippam, Henry, 13, Southey Street.  
 Smithurst, John, 20, Robin Hood Street.  
 Taylor, Harry Percy, —L.D.S. Eng., 22, Regent Street.  
*Thomas, William Hendy*, —L.D.S. Eng., 2, Oxford Street. [Street.  
*Vowles, Frank Victor*, —L.D.S.I., Grosvenor House, North Circus  
 Warriner, Charles William, 400, Alfreton Road.  
*Watson, Francis Edward*, —L.D.S. Eng., 72A, Shakespeare Street.  
 Widdowson, Edwin, Bulwell.  
 Widdowson, Reuben, 12, Arkwright Street.  
*Wing, John William*, 136, Mansfield Road.

NUNEATON. Pop. 24,990.

Baker, Matthias, 133, Abbey Street.  
*English, F.*, —L.D.S. Eng., 3, Queen's Road.  
 Lester, Henry, 1, Bridge Street.  
 Lowe, Ernest Henry.

OAKHAM. Pop. 3,293.

Pascall, Frederick George, Market Place.

OLD CHARLTON.

Ganney, William Edward, 4, Fairfield Road.

OLDHAM. Pop. 137,238.

Braddock, William, —L.D.S., M.R.C.S. Eng., L.R.C.P. Lond, 33,  
 Queen's Road.  
 Buckley, Charles Herbert, —L.D.S., M.R.C.S. Eng., L.R.C.P. Lond.,  
 10, Chester Street, Werneth.  
 Buckley, William Henry, —L.D.S.I., 15, Bottom o' th' Moor.  
 Buckley, William Henry, —L.D.S., M.R.C.S. Eng., L.R.C.P. Lond.,  
 20, Union Street.  
*Dickie, James John*, 23, Crossbank Street.  
 Goodall, Frederick, 46, Manchester Street.  
*Hartley, William Cotton*, 44, Beal Lane, Shaw.  
 Hogg, William Cochrane, 7A, King Street.  
 Platt, J. W., 16, Milnrow Road, Shaw.  
 Prestwich, James Henry, Wellington Street.  
 Robinson, John Henry,|| —L.D.S. Eng., Jessamine Place, Hollinwood.  
 Taylor, Thomas, Beale House, Shaw.  
 Uttley, Thomas, 303, Oldham Road, Royton.

Ward, Frederick George, 180, Union Street. [Bank.  
Wormald, Thomas, || —L.D.S.I., 188, Union Street East, Rhodes'

## OLNEY (BUCKS).

Glaspole, Lorenzo Bernard, —L.D.S. Edin., Dartmouth Road.

OMAGH. Pop. 4,800.

Philson, Matthew Starling.

OPENSHAW. Pop. 2,100. [See Manchester.]

Lawton, Stephen Hetherington, 708, Ashton Old Road.

Squire, James Henry, 15, Ashton Road.

OSWALDTWISTLE. Pop. 14,192.

Slater, Alfred George, 331, Union Road.

OSWESTRY. Pop. 9,579.

Cottam, John, —L.D.S.I., Caxton House.

Cottam, Ralph William.

*Cottam, Thomas Matthew*, —L.D.S.I., Caxton House.

Kidner, Henry Richard Charles, The Poplars.

Tilsley, James, Llanymynech.

OTLEY. Pop. 9,885.

Mudd, Joseph, 23, Queen's Terrace.

OXFORD. Pop. 49,413.

*Bennett, Thomas James*, 8, Broad Street. [Street.

*Bevers, Edmund Augustine*,\* —M.R.C.S. Eng., L.S.A., 46, Broad

Burton, Harry Sandford, —L.D.S. Eng., 50, Cornmarket Street.

*Chaundy, Arthur Ernest*, —L.D.S. Eng., 71, High Street.

Franks, Baron Joseph, 21, St. John Street.

*Geekie, William*, —L.D.S. Glas., 42, St. Giles Street.

*Hale-Jessop, Ernest Charles Hale*, —L.D.S.I., 12, Beaumont Street.

*Heath, Arthur Reginald*, —L.D.S. Eng., 29, Beaumont Street.

Hill, Frederick William, —D.M.D. Harv., 62, High Street.

*James, Benjamin Edgar*, —L.D.S. Eng., 46, Broad Street.

Kendrew, Augustus, —L.D.S. Eng., 195, Iffley Road.

Paterson, Howard James, —L.D.S. Eng., 39, Beaumont Street.

Ryle, Arthur Buxton, —L.D.S. Eng., 24, Beaumont Street.

*Sherwood, Martin*, —L.D.S.I., 17, Beaumont Street.

Squire, James, 41, Queen Street.

Watkins, Thomas, 120, St. Aldate's Street.

Willson, Alfred Rivers, 42, Wellington Square.

PADIHAM (LANCS). Pop. 14,000.

Law, J., 110, Burnley Road.

PAIGNTON. Pop. 8,385.

Gask, Arthur Cecil, —L.D.S. Eng., Newstead House.

*Petherbridge, James*, —L.D.S. Eng., Wern Dantzey.

Wheelock, William Richard, Mon Repos, Dendy Road.  
*Whittell, John Henry*, San Remo.

PAISLEY. Pop. 66,425.

Bauchop, Alexander Gilmour, —L.D.S. Glas., Stonefield.  
 Crerar, Donald, —L.D.S., M.B. Edin., 1, Gauze Street.  
 Cullen, Thomas, 12, St. James's Place.  
 Davidson, Robert Russell, —L.D.S. Glas., Inglefield, Glasgow Road.  
 Holmes, John, —L.D.S. Glas., 50, High Street.  
 Noney, Frederick Edgar, —L.D.S. Glas., Whinknowe, Meikleriggs.  
 Taylor, Thomas Henry, —L.D.S. Glas., 1, Gauze Street.  
*Wallace, James*, —L.D.S. Glas., 93, High Street.

PARKSTONE (DORSET). Pop. 6,550.

*Harper, J.*, —L.D.S. Eng., L.R.C.P., M.R.C.S., Church House  
 Chambers.

PEEBLES. Pop. 3,095.

Lindsay, Robert, 52, High Street.

PEMBROKE DOCK. Pop. 10,500.

Bowling, John Henry, 42, Dimond Street.  
*Lord, James Lewtas*, —L.D.S. Eng., 20, Water Street.  
 Saies, Charles Lochore, —L.D.S. Eng., 20, Water Street.

PENARTH. Pop. 14,227.

Hughes, Jacob, Clive Crescent.  
 John, William David, 4, Church Road. [D.D.S. Penn., Ravensworth.  
*Oliver, John Percy*, —L.D.S., M.R.C.S. Eng., L.R.C.P. Lond.,  
 Riches, Herbert Cecil, 22, Windsor Terrace.

PENRITH. Pop. 8,980.

Leigh, William Johnson, —L.D.S. Eng., Egerton House.  
*Morton, Joseph*, —L.D.S. Edin., 9, Victoria Road.

PENZANCE. Pop. 13,123.

Badgery, William, —L.D.S. Eng., 8, Morrab Road.  
 Cara, Thomas Mills, Antron House, Chapel Street.  
 Crocker, James Charles Vipond, —L.D.S. Eng., 56, Morrab Road.  
*Gartrell, John Herbert*, —L.D.S. Eng., 47, Chapel Street.  
 Johnstone, William Hope, 38, Market Place.

PERTH. Pop. 30,762.

*Crichton, J. P.*, —L.D.S. Eng., 7, Charlotte Street.  
 Kelt, Andrew Peter, 28, St. John Street.  
*Lawson, James Robert*, 30, York Place.  
*Stewart, James*,\* —L.D.S. Edin., 19, Princes Street.  
 Stobie, Joseph, 14, St. John Street.

PETERBOROUGH. Pop. 30,870.

Farr, Joseph Yaxley, near Peterborough. [gate.  
*Lamb, Charles J.*, —L.D.S., R.C.S. Eng., The Mansion House, West-



*Parris, Richard Stanway*, —L.D.S., R.C.S., Eng., The Mansion House, Westgate.

*Payling, Richard*, 24, Cowgate.

*Staton, Henry Hamilton*, —L.D.S. Eng., 24, Cowgate.

PETERHEAD. Pop. 13,674.

Forbes, James, 67, Broad Street.

*Forbes, James Alexander Brodie*, 111, Queen Street.

Milne, David Johnston, 31, Prince Street.

PETERSFIELD (HANTS). Pop. 3,265.

Hall, John, —L.D.S. Eng., 29, High Street.

PLYMOUTH. Pop. 100,640.

Allen, Joseph, 1, George Street.

Ashford, Claude Henry, —L.D.S. Edin., M.R.C.S. Eng., L.R.C.P. Lond., 5, Lansdowne Place.

Barge, John, 68, Old Town Street.

*Brittan, George Reginald*, —L.D.S. Edin., 2, North Devon Place, Tavistock Road. [Road.

Coles, Ernest Victor,\* —L.D.S. Eng., 3, Bedford Terrace, Tavistock

Cooper, Henry Robert, 57, Union Street.

Cuthbertson, Thomas Maitland. —L.D.S. Eng., 9, Buckland Terrace.

Down, Edwin Alfred, 1, Westbury Terrace, North Road.

*Geldard, Richard Henry*, —L.D.S. Eng., 6, Buckland Terrace.

*Hambly, Alfred George*, —L.D.S.I. and Glas., 3, Buckland Terrace.

Harris, A., 2 Montrose Terrace.

Hiam, Henry, 4, Knollys Terrace.

Hiam, James, Pentillic Crescent, Ford Park.

*Jewers, Ernest Edwin*,\* —L.D.S. Eng., 3, Athenæum Terrace.

*Keys, Elias Linnaeus*, 9, York Street.

Lavender, George Hurst, 7, York Place, York Lane.

*Lean, Norman Henry*, —L.D.S. Eng., 7, Queen Anne Terrace.

Lyne, Wilfrid Courtney,\* —L.D.S. Eng., 22, Mutley Plain.

*Mallett, Henry*, —L.D.S. Edin., 3, Princess Square.

Overell, Arthur Wellesley, 51, Union Street.

Pearse, Francis Henry, —L.D.S. Eng., 10, Queen Anne Terrace.

Pearse, Thomas, 153, Union Street.

Percy, Thomas Bickle, 9, Buckland Terrace.

Roper, John Langdon, —L.D.S. Eng., 34, Tavistock Road.

Roper, Robert Francis, 34, Tavistock Road.

*Sexton, Louis Edwin*, —L.D.S. Eng., 19, Portland Square.

Sexton, William Robert, 19, Portland Square.

Sherwood, John George, 41, Old Town Street.

Sleemin, Alfred, 8, Princess Square.

Sleep, Frederick, —L.D.S.I. and Glas., Queen Anne House, Tavistock

Taylor, Arthur, —L.D.S. Eng., 8, Mulgrave Place.

Venning, S. D., —L.D.S. Eng., 7, Buckland Terrace.

Wells, John,\* —L.D.S.I., 4, Athenæum Terrace.

PONTEFRACT. Pop. 9,700.

Maud, William Robert, Market Place. [Mannington.  
*Woodcock, Richard Ernest*,\* —L.D.S. Eng., Gilly Gate House,

PONTYBODKIN.

Jones, John, The Surgery.

PONTYPOOL. Pop. 6,126.

Mason, Samuel Butler, Denham House, Park Terrace.

PONTYPRIDD. Pop. 32,319.

Jones, R. L., —L.D.S. Eng., 14, Gelliwastad Road.  
*Jones, William Henry*, —L.D.S. Eng., 14, Gelliwastad Road.  
*Llewellyn-Jones, R.*, —L.D.S. Eng., 27, Gelliwastad Road.  
 Key, William Howels, Taff Street.  
 Lloyd, Rees, Penygraig.

POOLE. Pop. 15,400.

Mountain, William, —L.D.S. Eng., Ringwood Road.  
*Myers, Lancelot Brainard*, —L.D.S. Eng., The Pines, Parkstone Road.

PORTSEA. Pop. 151,600.

*Mortimer, Francis Charles*, Cornwall House, Ordnance Road.  
 Smith, Frederick Warren, 7, Lion Terrace.

PORTSLADE-BY-SEA. Pop. 5,217.

Fawthrop, Thomas, Medina House.

PORTSMOUTH. Pop. 190,715.

*Austen, Leslie Gilmore*,\* —L.D.S. Eng., Cambridge House, High Street. [mercial Road.  
 Aylen, George Herbert, —L.D.S. Eng., Chester House, 434D, Com-  
*Baker, Alfred John*,\* —L.D.S.I., Albert Villa, Kingston Crescent.  
*Battersby, John Henry*, —L.D.S. Eng., 497, Commercial Road, Land-  
 port.  
 Bennison, John Spiers, 379, Commercial Road.  
 Foster, F. G., 219, Lake Road, Landport.  
*Foster, J. Scott*, J.P., —L.D.S. Glas., 85, Commercial Road.  
 Foster, J. Scott, —L.D.S. Eng., 85, Commercial Road.  
 Francis, Frederick Charles, 12, Arundel Street.  
*Jeffery, Edward William Albert*, —L.D.S. Eng., 85, Commercial Road.  
 Ladmore, F. T., —L.D.S. Eng., 3, Poplar Terrace, Queen's Road,  
 Kingston.  
 Martin, John Henry Charles Erridge, —L.D.S. Eng., M.R.C.S. Eng.,  
 M.D. Edin., Cambridge House.  
 Townley, William Bennett, 2, Commercial Place, Commercial Road.

PORTSOY. Pop. 1,878.

Clark, James, Square.  
 Simmers, Williemia, —L.D.S. Glas., East Manse.

## POULTON-DE-FYLDE. Pop. 11,726.

Rhodes, Amelia, Thornton.

## PRESTON. Pop. 112,982.

Breakell, John James, —L.D.S. Eng., 71A, Church Street.

*Charnock, Harry*, —L.D.S. Eng., 51, Lune Street.

Cooksey, George, —L.D.S. Eng., 94, Fishergate.

Edmondson, Hubert Henry, —L.D.S. Eng., 51, Fishergate.

Garth, John, 1, Avenue Terrace.

*Jackson, Charles*, 18, Moore Lane.

Jackson, William, 35, Aqueduct Street East.

Mercer, John, 53, Water Lane.

Miller, Arthur, —L.D.S. Eng., 95, Fishergate.

*Miller, Nathaniel*, —L.D.S.I., 95, Fishergate.

*Miller, Thomas Henry*, —L.D.S. Eng., M.B., Ch.B. Vict., 95, Fishergate.

Stordy, Thomas, —L.D.S. Eng., The Bank.

*Sykes, Alfred*, —L.D.S. Eng., 20, Fox Street, Fishergate.

Tice, William George, Fishergate.

Watkinson, William Joseph, 43, Plungington Road.

*Wilkinson, James*, —L.D.S.I., 8, Mill Bank (not in practice).

Worsley, John, 7, Fishergate Hill.

## PRESTWICH. Pop. 12,839.

Bentley, J. Fielding, —L.D.S. Eng., 1, Rose Bank, Bury New Road.

Emery, Edmund Aloysius, —L.D.S. Eng., Fern Holme, 4, Gardner Rd.

Johnson, Francis, Bury New Road.

Seed, Henry B., 3, Gardner Road.

## PRINCES RISBOROUGH. Pop. 2,500.

Ridley, Horace.

## PULTENEY WICK. Pop. 5,600.

Miller, Kenneth, 7, Lower Dunbar Street.

## PURLEY. Pop. 1,500.

*Drewitt, Alfred*, —L.D.S. Eng., Eversleigh, Brighton Road.

## PWLLHELI. Pop. 3,675.

Pughe, Rice Owen, Medical Hall.

## RADCLIFFE. Pop. 25,368.

Smith, John Thomas, 17, Blackburn Street.

*Woodward, Roger*, || 21, Sunny Mount.

## RAMSEY (HUNTS.). Pop. 4,823.

Howe, Oliver George, High Street.

## RAMSEY (ISLE OF MAN).

Hodges, Edward Goodall, Somerville, Coburg Road.

Mann, Henry Augustus, The Druin.

RAMSGATE. Pop. 27,693.

Blower, George Frederick, —L.D.S.I., 11, Royal Road.

Chandler, Percy Ernest, —L.D.S. Eng., 68, High Street.

Preston, Henry Michell.

[Cliff Road.

*Saunders, Walter,\** —L.D.S.I., D.D.S. Phil., Memel House, West

RAWCLIFFE, YORKS. Pop. 1,906.

Emerson, Henry Wall, High Street.

RAWTENSTALL. Pop. 31,052.

Stocks, Ephraim, 49, Bank Street.

READING. Pop. 70,890.

*Aveline, Sydney,* —L.D.S.I., 11, Friar Street.

Babbage, Alfred Edward, 59, St. Mary's Butts.

Biddles, William Byron, Blagrove Street.

Clarke, Rupert Lewis, 8, The Forbury.

[Road.

*Goadby, Allan Lindsay,* —L.D.S. Eng., Sidmouth House, London

*Knowles, Vernon,\** —L.D.S. Eng., Kendrick View, London Road.

Knowles, John Hiles, 38, Oxford Street.

Oades, Geoffry Smyth, —L.D.S. Eng., The Bank, King Street.

*Parfitt, John Brodribb,\** —L.D.S., M.R.C.S. Eng., L.R.C.P. Lond.,  
179, King's Road.

Parfitt, Felix William, —L.D.S. Eng., Farleigh House, 179, King's Rd.

Scott, Alexander Thomas, —L.D.S.I., 46, Erleigh Road.

Smith-Hammond, Arthur, —L.D.S. Eng., Anerley, 211, King's Road.

Walsh, Neville, 27, Blagrove Street.

REDBOURN. Pop. 1,932.

Boucher, Frederick George, High Street.

REDDITCH. Pop. 13,493.

*Joscelyne, Harry Percy,* —L.D.S. Eng., 5, Church Green, E.

REDHILL. Pop. 16,010.

*Ellwood, Francis Henry,\** Granville House.

*Gabell, Alverstone,* —L.D.S.I., Meadowcroft, Station Road. [Road.

Heesom, Edwin Ernest Darley, —L.D.S. Eng., Lowcroft, Station

Heesom, James Ernest, Welton House, London Road.

REIGATE. Pop. 25,998.

Bidlake, Luther, —L.D.S. Eng., North Redlands, London Road.

*Bowden, George Henry,\** —L.D.S. Eng. and Glas., Sunningdale,  
28, London Road. [Lond., Low Wood.

Shelton, Harvey Llewellyn,\* —L.D.S. Eng., M.R.C.S., L.R.C.P.

RETFORD. Pop. 12,339.

*Mordaunt, Osbert,¶* —L.D.S. Eng., 37, Cobwell Road.

*Wood, George William,¶* —L.D.S.I., Grove Street

## RHAYADER. Pop. 1,215.

Roberts, John, Swan Shop.

## RHYL. Pop. 8,473.

*Bevington, Ernest*, —L.D.S. Eng., Bod Haulog, Russell Road.

Edwards, Richard, 65, High Street.

*Jenks, F. S.*, —L.D.S. Glas., Vaenol, Russell Road.

Lukyn, Thomas, Fern Villa, Church Street.

## RICHMOND (SURREY). Pop. 26,859. [See London.]

*Cane, Edward*, 8, The Green.

Clarke, Thomas Meadows, Windermere, Sheen Road.

*Davis, Harry*,\* —L.D.S. Eng., 14, Church Road.

Edy, Charles William, —L.D.S. Eng., 20, St. John's Grove.

Lloyd, Henry, 1, Old Palace Terrace, The Green.

*Manning, R. H.*,\* L.D.S. Eng., 3, Lancaster Place, Richmond Hill.

Picton, Edwin, —L.D.S. Eng., Tower House, The Bridge.

*Richards, George Oliver*,\* —L.D.S. Eng., M.R.C.S., Onslow House, 9, The Green.

Rudd, George Henry, 3, Park Shot.

*Street, George Hayward*, —L.D.S.I., 3, Hill Rise.

## RICHMOND (YORKS.). Pop. 3,836.

Bradley, John Joseph, Market Place.

*Wilson, Frederick Arthur*, —L.D.S. Edin., Market Place.

## RIPLEY (DERBYSHIRE). Pop. 10,111.

*Andrews, George Seckham*, Glenlee, Grosvenor Road.

## RIPON. Pop. 8,225.

*Habgood, John Rainbow*, —L.D.S. Glas., Fountains Terrace.

Hammond, George William, Dental House.

Senior, William Furber, 10, Old Market Place. [practice].

Washbourn, Edward Norman, —L.D.S. Eng., Spring Bank (not in

## ROCHDALE. Pop. 83,112.

Beaumont, Charles Richard, Tomes House, Yorkshire Street.

Butterworth, Betsey, 90, Drake Street.

Clegg, James, 34, Smith Street.

Greenhalgh, James Taylor, —L.D.S. Eng., 152, Drake Street.

Head, John, —L.D.S. Glas., Millgate, Facit.

*Holden, Allen*, —L.D.S. Eng., 128, Yorkshire Street.

Law, Ormerod, 66, Oldham Road.

*Renshaw, Isaac*,|| —L.D.S.I., 87, Drake Street.

Whipp, John, The Elms, Yorkshire Street.

## ROCHESTER. Pop. 30,622.

Hobbes, Alfred Edward, 358, High Street.

Picnot, Charles, 71, High Street.

*Picnot, Ernest*, —L.D.S. Eng., Rutland House.

Roots, John Henry, 248, High Street.

*Shrubsole, E.*, —L.D.S. Eng., 290, High Street.

Watson, William, Clifton Villa.

ROCK FERRY. Pop. 8,801.

*Drake, Arthur*, ‡ —L.D.S. Eng., 46, Rock Lane, W. [Park.  
*Tomlinson, Henry Harrison*, —L.D.S. Eng., Harrell Mount, 10, Derby  
*Tomlinson, John William*, ‡ —L.D.S. Eng., Harrell Mount, 10, Derby  
 Park.

*Waite, William Henry*, ‡ —L.D.S.I., D.D.S. Phil., Lyttleton Villa.

ROMFORD. Pop. 13,656.

Burnett, Edward, 43, North Street.  
 Lasham, John William, High Street.  
 Scarliff, William Bell, South Street.

ROMSEY. Pop. 4,365.

*Oram, Charles Henry*, —L.D.S. Eng., 39, The Hundred. (Also  
 Southampton.)

ROSCOMMON (IRELAND).

Walker, Joseph, —L.D.S.I., Cloncannon, Ballygar.

ROSS. Pop. 3,576.

Matthews, Thomas, 'Man of Ross' House.  
 Parrott, A. William, —L.D.S. Eng., Berkeley House.  
*Yates, Sidney Greatrex*,\* —L.D.S.I., Berkeley House, New Street.  
 Yates, Ralph Greatrex, —L.D.S. Eng., Berkeley House, New Street.

ROTHERHAM. Pop. 42,052.

Lawson, Charles Edward, 11, Masbro' Bridge.  
 Lidgett, Walter Fletcher, Beech Villa, Doncaster Road.  
*Lodge, George Henry*, ¶|| —L.D.S.I., L.R.C.P., L.R.C.S. Edin., L.F.P.  
 and S. Glas., M.D. Brux., Osborne House, Moorgate Street.  
 Mason, Frederick, 30, High Street.

ROYSTON. Pop. 3,517.

Farnham, William Frederick, 2, South Bank, London Road.  
 Pickering, George Alfred, Well Hill.

ROYTON. Pop. 14,881.

Butterworth, John Robert, 51, Oldham Road.

RUGBY. Pop. 16,830.

Brown, John, 36, North Street.  
*Finch, A. G.*, —L.D.S. Eng., 24, Warwick Road.  
*Haynes, Frederick*,\* —L.D.S. Eng., Hillmorton Lodge, 49, Church St.

RYE. Pop. 3,900.

Huckle, Claud Hamilton, —L.D.S. Eng.

SALE. Pop. 9,645.

*Jones, Ernest Guy*, —L.D.S. Eng., The Laburnums, Sibson Road.  
*Jones, J. Henry*, || —L.D.S.I., The Laburnums, Sibson Road.  
*Preston, Charles Henry*, || —L.D.S. Eng., M.D., B.Sc. Lond., F.R.C.S.  
 Eng., 21, Washway Road.  
 Skipp, George Nash,\* || —L.D.S. Eng., 12, School Road.  
 Wovenden, Henry, 7, School Road.



## SALFORD. Pop. 198,139. [See Manchester.]

Metcalfe, James, 229, Oldfield Road.

Metcalfe, Thomas Johnson, 13, Trafford Road.

*Minshall, Frederic William*,|| —L.D.S.I., 6, Hulme Hall Crescent.

Parkins, Thomas, 1, Bexley Square.

*Rodway, John Barron*, —L.D.S. Eng., 6, Hulme Hall Crescent.

Suffolk, Thomas.

## SALISBURY. Pop. 17,117.

Dunmore, George Henry, Downton, near Salisbury.

Farebrother, Aubrey Harry Burne,\* —L.D.S. Eng., 3, New Street.

*Farebrother, Horace John Lloyd*, —L.D.S. Eng., 3, New Street.

*Howe, A. F. A.*,\* —L.D.S. Eng., c/o P.M.O., Southern Command.

*Mackley, Ernest Hubert Aldborough*,\* —L.D.S. Eng., 34 to 36, Fisherton Street.

Mackley, Leopold Anderson, —L.D.S. Eng., 36, Fisherton Street.

Masters, Frederick, 2, Castle Street.

Parker, Lewis Jacques, 26, Castle Street.

## SALTASH. Pop. 3,357.

Mathew, William Ham, 5, Westbourne Terrace.

## SALTBURN-BY-THE-SEA. Pop. 2,578.

Taylor, William, Sydenham House.

## SALTCOATS. Pop. 5,900.

Walker, James, 19, Dockhead Street.

## SANDYMOUNT (Co. DUBLIN).

Murton, Robert, 49, Bath Avenue.

## SCARBOROUGH. Pop. 35,775.

Ashby, Cecil, —L.D.S. Eng., Argyll Lodge, Belmont Road.

Ashby, Reginald Frank, —L.D.S. Eng., Argyll Lodge, South Cliff.

*Brown-Mason, C.*, —L.D.S. Eng., 5, The Crescent.

*Catt, Ernest*,\* —L.D.S.I., D.D.S. Mich., 12, Valley Bridge, Parade.

*Constant, Thomas Edward*,\* —L.D.S. Eng., M.R.C.S., L.R.C.P., 20, Ramshill Road.

*Grayston, William Cass*,\* —L.D.S.I., 1, Pavilion Terrace.

Mason, Charles Browne,\* —L.D.S. Eng., 5, The Crescent.

Mountfort, Charles Ernest, —L.D.S. Eng., 22, Ramshill Road.

*Musgrave, Gilbert Mordaunt*, —L.D.S. Eng., Carlton House, Westborough.

Preston, Henry Mitchell, 38, Gladstone Street.

*Stoner, Harry John*, —L.D.S. Eng., 5, The Crescent.

Walshaw, George Henry, 7, West Street.

## SEACOMBE. Pop. 15,440.

Crooke, William James, —L.D.S. Glas., 8, Beaufort Terrace.

Holt, Richard Wylde.

SEAHAM HARBOUR. Pop. 10,163.

Emmerson, H. W., 15, North Terrace.

Wightman, James Temple, 59, Church Street.

SEVENOAKS. Pop. 7,512.

*Tomylin, Louis Crowhurst*, —L.D.S. Eng., Suffolk Place.

SHAFTESBURY. Pop. 2,027.

Griffin, Arthur Albert Ernest, 2, Parsons Pool.

SHEERNESS-ON-SEA. Pop. 18,273.

Ettles, John, 56, High Street.

Saffery, William George, 56, High Street, Mile Town.

SHEFFIELD. Pop. 361,170.

Alcock, Alfred, 318, Shales Moor.

*Allen, James Seymour*, ¶ —L.D.S. Edin., 289, Glossop Road.

Alnwick, William Williams, 39, Highfield Place.

Bartholomew, Percy Langton, ¶ —L.D.S. Edin., 44, Broomgrove Road.

Blagg, Eli, 20, Albany Road, Sharrow.

Burnell, John Shepherd, 321, Glossop Road.

Carr, George, 165, Devonshire Street.

Colton, Robert, 244, Bramall Lane.

Cooper, Henry Thomas, 32, Taplin Road, Hillsborough.

*Dale, Frederick*, —L.D.S. Glas., 3, Winter Street.

Davies, David Dathl, —L.D.S. Glas., 273, Glossop Road.

Dobb, Joseph Tinker, 60, West Bar.

*Drabble, Charles, Clement*, ¶ —L.D.S. Eng., 344, Glossop Road.

*Drabble, Luther Heaton*, 69, Wicker.

*Drabble, Robert Charles Heaton*, ¶ —L.D.S.I., 344, Glossop Road.

Ellinor, George, 127, Spital Hill.

Flint, Edward Gore, 271, St. Phillip's Road.

Forrest, George Isaac, 223, St. Mary's Road.

Fox, Alfred Russell, 8, Castle Street.

*Fox, Walter Caughey*, 8, Castle Street.

Garnett, Henry Joseph, 75, South View Road, Sharrow.

Goucher, Levi Tom, 66, Howard Street.

Graham, Andrew Ward, 102, West Bar.

Gray, Arthur Joseph, Kassala House, 277, Glossop Road.

Hall, George Frederick, —L.D.S.I., 97, Langsett Road. [Road.

*Harrison, Frank*, ¶ ¶ —L.D.S. Edin., M.R.C.S. Eng., 289, Glossop

Howgate, Benjamin James.

Hoyland, Herbert Arthur, 32, Carver Street.

Jepson, Xeno, 286, Rockingham Street.

Law, W. J., —L.D.S. Eng., 251, Western Bank.

Lowe, Samuel Peter, 42, London Road.

Mahony, Charles, 172, Hanover Street.

Mayor, Thomas, 36, Langsett Road.

Milner, John, Albert House, Albert Terrace Road.

*Mordaunt, Francis George*, ¶ —L.D.S. Eng., 157, Norfolk Street.

Mordaunt, Osbert, 97, Meersbrook Park Road.  
*Morris, Henry James*, ¶ —L.D.S. Eng., 451, Glossop Road.  
 Nelson, Henry, 83, West Street.  
 Newsholme, G. T. W., 27, High Street.  
*Pike, James Lee Francis John*,\* —L.D.S. Eng., 273, Glossop Road.  
 Poole, William George, 175, Devonshire Street.  
 Ruff, Richard, 81, West Street.  
 Skerritt, William Burbridge, 175, Brookhill.  
*Spotswood, John*, —L.D.S. Glas., 7, Norfolk Road.  
 Staniforth, Henry, 62, Fitzwilliam Street.  
*Stokes, Charles*, ¶ || —L.D.S.I., 240, London Road.  
*Stokes, Percy Southwell*, ¶ —L.D.S. Eng., 240, London Road.  
 Turner, John, 65, Ashland Road.

## SHERBORNE (DORSET). Pop. 5,750.

McMahon, George E., —L.D.S. Eng., Avalon, South Street.  
 Vosper, Frederick, —L.D.S. Eng., Cheap Street.

## SHERINGHAM (NORFOLK). Pop. 2,415.

Sumpter, A. A., —L.D.S. Edin., The Point.

## SHIFNAL. Pop. 6,500.

Hare, Arthur Frederick, 2, Victoria Road.

## SHIPLEY. Pop. 25,570.

Bayley, George Henry, Upper Nab House, Nab Wood.  
 Watson, Joseph Henry, 36, Westgate.

## SHOREHAM (SUSSEX). Pop. 3,837.

Fenner, Edwin, Brunswick Road.

## SHREWSBURY. Pop. 28,396.

Gregory, George William, 5, Wyle Cop.  
*Griffin, R. W.*, —L.D.S. Eng., School Chambers, Castle Street.  
*Harding, William Edward*,\* || —L.D.S. Eng., 25, Castle Street.  
*Jones, Grenville Horatio*.  
*King, Roff*, —L.D.S.I., School Chambers, Castle Street.  
*Mugford, George Henry*, —L.D.S. Eng., 25, Castle Street.  
*Nelson, William James*, St. Mary's Street.  
*Oxley, Leonard Jervis Rice*, —L.D.S.I., Dogpole House.

## SIDCUP. Pop. 8,143.

Wade, Walter, 4, Clyde Terrace.

## SITTINGBOURNE. Pop. 8,944.

Willson, James George, 22, Park Road.

## SKIPTON. Pop. 11,986.

*Butchart, Charles Kynoch*, —L.D.S. Edin., 23, Devonshire Street.  
*Hargreaves, Eta James*, —L.D.S. Eng., Swadford House.  
*Sloane, G. G.*, —L.D.S.I., 13, Swadford Street.

## SLAMANNAN. Pop. 6,700.

Horne, John Walter, —L.D.S. Edin., Schoolhouse.

SLIGO. Pop. 10,300.

*Quinton, Herbert*, —L.D.S. Eng., Wine Street.

*Rose Henry*, —L.D.S. Eng., Albert Street.

SLOUGH. Pop. 11,461.

*Carter, Edward George*, —L.D.S. Eng. and Glas., Daisymead, Sussex

*Wilson, Charles Albert*, —L.D.S. Eng., 34, Mackenzie Street. [Place.

SNODLAND. Pop. 3,091.

*Millidge, Benjamin John*, 3, High Street.

SOUTHALL.

*Butler, A. F. R.*, —L.D.S. Glas., Lonsdale, South Road.

SOUTHAMPTON. Pop. 104,911.

*Bates, William*, 50, Oxford Street. [Bitterne.

*Chignell, Thomas Alexander*, —L.D.S. Eng., The Shrubbery,

*Corke, Henry Charles*, 178, High Street.

*Crocker, George Thomas Ockleford*, 139, Above Bar Street.

*Crocker, James Lorden*, —L.D.S.I., 14, Oxford Street.

*Croucher, Arthur Thomas*, —L.D.S. Eng., 1, Portland Terrace.

*Dawson, Oliver Robert*, Portarlinton, College Place. [Place.

*Dawson, William James Oliver*, —L.D.S. Eng., Portarlinton, College

*Hartnoll, Percy O' Bryen*, —L.D.S. Eng., 1, Portland Terrace.

*Hickley, James Bennick*, 3, Anglesea Place (133, Above Bar).

*Horrell, William*, 88, Buchan Terrace.

*Hughes, John Henry*, 2, Canute Road.

*Johns, John Jeffery*, 184, High Street.

*Johnson, Walter E.*, 9, Bevois Hill.

*McLauchlan, James*, 14, Anglesea Place.

*Moody, William Henry Dobelle*, 46, Edward Road, Freemantle.

*Oram, Charles Henry*, —L.D.S. Eng., 6, College Terrace.

*Pellow, Charles James*, —L.D.S. Eng., 5, High Street.

*Pellow, William Trehane*, —L.D.S.I., 5, High Street.

*Phillips, Harry, Alma*, 9, London Road.

*Saunders, Arthur Harold*,\* —L.D.S. Eng., 10, Rockstone Place.

*Whitlock, Draycott Kelly*, 1, Anglesea Place.

*Wilkes, J. Sanders*, 21, Above Bar.

SOUTHEND-ON-SEA. Pop. 28,857.

*Archer, Archibald*, —L.D.S. Eng., 74, Hamlet Court Road, Westcliffe.

*Harrington, Arthur Lewis*, —L.D.S.I., 40, Alexandra Street.

*Jarritt, Fitzgerald William*, 36, Alexandra Street.

*Jones, George Silva*, —L.D.S. Eng., 23, High Street.

*Thorn, Harry*, —L.D.S. Edin., Broadwater House.

SOUTHMINSTER. Pop. 1,430.

*Steele, Stephen* Southminster.

SOUTH MOLTON. Pop. 2,841.

*Merson, Frank*.

SOUTH PETHERTON. Pop. 2,500.

*White, William Charles*.

## SOUTH PLAISTOW. Pop. 18,000.

Hope, William Anthony, 34, Grafton Road.

## SOUTH PLUMPTON. Pop. 500.

Brammall, Robert Thomas, Oak Cottage.

## SOUTHPORT. Pop. 50,950.

*Anderson, John Horace*, —L.D.S. Eng., 45, Hoghton Street.

Ashworth, Alfred Giles, 17, Hoghton Street.

Bannerman, Charles Alexander, 27, Derby Road.

*Bryan, Hermann*, —L.D.S. Eng., 130, Duke Street.

Burch, George, Scarisbrick House, Virginia Street.

Carr, John, —L.D.S. Glas., York Road, Birkdale.

*Chapman, Harold*, L.D.S. Eng., D.D.S. Penn., 115, Hampton Road.

Charlick, A. B., 46, Liverpool Road, Birkdale.

*Davis, Bertram Henry*, —L.D.S. Glas., 59, Hoghton Street.

Dearden, William, 2, St. Paul's Street.

*Dickin, Joseph Sutton*, ‡ —L.D.S.I., 32, Hoghton Street.

Fitch, Claude Rawlingson, —L.D.S. Eng., 28, Hoghton Street.

*Fitch, Humbert Pearce*, || —L.D.S. Eng., 28, Hoghton Street.

*Garner, Frank Edward*, ‡ —L.D.S.I., 47, Liverpool Road, Birkdale.

*Haden, George William*, ‡ 22, Hoghton Street.

*Hargrave, William Ward*, ‡ —L.D.S.I., 22, Hoghton Street.

*Hargraves, Samuel*, ‡ —L.D.S. Eng., 63, Brighton Road, Birkdale.

*Hargreaves, Richard John*, —L.D.S.I., 22, Portland Street.

*Hartley, Frank Julian*, —L.D.S.I., 58, Liverpool Road, Birkdale.

Hartley, William Roland, —L.D.S.I., 47, Hoghton Street.

Highton, H. Cragg, —L.D.S. Eng., Scarisbrook, New Road.

*Hilder, George Edward*, ‡ —L.D.S.I., 2, Manchester Road.

Hitchon, Henry, Cambridge Road, Churchtown.

Kay, Henry Hague Webster, —L.D.S. Glas., 72, Eastbank Street.

Ladmore, Prosper, —L.D.S.I., Hoghton Lodge.

Petit, Charles Frederick Newton, —L.D.S. Eng., 4, Queen's Road.

Todd, James, Banks, near Southport.

Townend, John Robert, 105, Sussex Road.

*Watson, Robert*, || —L.D.S. Eng., 4, Queen's Road.

Whitlow, Herbert Leslie, —L.D.S. Eng., 36, York Street, Birkdale.

*Wormald, David Amos*, —L.D.S.I., D.D.S. Phil., Egremont, 31, Talbot Street.

## SOUTHSEA. Pop. 39,900.

*Aylen, George H.*, —L.D.S. Eng., 51, Victoria Road, South.

*Canning, Henry Albert Ellis*,\* —L.D.S. Eng., 11, King's Terrace.

*Cooper, Percy Henry Rogers*, —L.D.S. Eng., 1, Gloucester Terrace, King's Road.

Cornelius-Wheeler, John, Fitzclarence House.

Croot, H., —L.D.S. Eng., 19, Clarendon Road.

*Foran, Charles*, 72, Elm Grove.

Futcher, Alfred James, 56, Delamere Road.

Grace, Charles, 51, Palmerston Road.

Henchley, Joseph Richard, Highland Road, Eastney.  
 Hill, Ernest, 34, Wheatstone Road.  
 Kirton, William Henry, —L.D.S.I., Granada House, Elm Grove.  
 Knight, Charles George, Queensbury, Kent Road. [Kent Road.  
 Knight, Leonard Adolphus Charles, —L.D.S. Eng., Queensbury,  
 Knight, Reginald Douglas, —L.D.S. Eng., Queensbury, Kent Road.  
 McFadden, W. Edgar W., —L.D.S. Eng., 62, Victoria Road North.  
 Must, William Henry, —L.D.S. Eng., 5A, Palmerston Road.  
 Perfect, George, 51, St. Andrew's Road.  
 Redward, Herbert, 6, Russell Street.  
 Scott, Foster Tom, —L.D.S. Eng., Braemar, St. Helen's Parade.  
*Stainer, Courtenay Biffin*,\* —L.D.S. Eng., 19, Clarendon Road.  
*Stainer, Robert William*, —L.D.S. Eng., 19, Clarendon Road.  
*Taylor, Harry William*, —L.D.S. Eng., 10, Kent Road.  
 Trist, Richard, 15, Albert Road. [Southsea.  
 Wheeler, Frederick William, Whitby House, Clarendon Road, East  
*Wollaston, Frederick Henry*, 24, St. Edmund's Road.

SOUTH SHIELDS. Pop. 97,267.

Markham, Robert William,§ —L.D.S. Edin., 170, Westoe Road.  
*Page, Thomas Dilks*,§ —L.D.S. Edin., 5, Charlotte Terrace. [Street.  
*Sutcliffe, Charles Frederick*,\*§ —L.D.S.I., 15, Victoria Terrace, Fowler  
 Turnbull, Charles Frederick, —L.D.S. Edin., 15, Victoria Terrace

SOUTHWELL (NOTTS.). Pop. 3,161.

Beardsall, John Nicholson, Farnsfield.

SOUTHWICK. Pop. 3,364.

Ward, Charles Thomas, 83, Albion Street.

SOUTHWOLD. Pop. 2,800.

Critten, Robert Peirson, High Street.  
 Hanner, Walter Jones.

SOWERBY BRIDGE. Pop. 10,410.

*Cocker, Alfred*,|| —L.D.S.I., Dewell House.

SPALDING. Pop. 12,093.

Perry, William Kerby, —L.D.S. Eng., 3, Church Street.  
 Shelton, John Alfred, Pinchbeck Street.

SPENNYMOOR. Pop. 16,661.

Bentham, William, 7, High Street.  
 Farthing, Thomas, 11, High Street.  
 Thompson, William, 25, King Street.

STAFFORD. Pop. 20,894.

*Cater, Alfred Parker*, —L.D.S. Eng., 8, St. Mary's Grove.  
*Marson, Cyril Darby*, —L.D.S., M.R.C.S. Eng., L.R.C.P. Lond.,  
 23, Greengate Street.



Mosscrop, H. Edwin, —L.D.S. Eng., 71, Wolverhampton Road.  
*Owen, T.*, —L.D.S. Eng., Castleburgh, Newport Road.  
 Ridge, Walter Henry, —L.D.S. Eng., 77, East Gate Street.

## STAINES. Pop. 6,688.

Bacon, Harold,\* —L.D.S. Eng., 15, Clarence Street.  
 Garne, Sydney William, —L.D.S. Eng., 15, Clarence Street.

## ST. ALBANS. Pop. 16,019.

Allenby, Henry, St. Albans.  
 Bailey, John James, —L.D.S. Edin., 1, Peahen Chambers.  
 Bolton, Arthur, 17, London Road.  
 Myers, Lancelot James, —L.D.S. Eng., 78, Victoria Street.  
 Pearse, Cecil Gilbert, —L.D.S. Eng., 17, London Road.

## STALYBRIDGE. Pop. 27,674.

Holland George, 11, Portland Place, Mottram Road.  
 Howard, Robt.,|| —L.D.S. Eng., 126, Stamford Street.  
*Jones, W. H.*, —L.D.S. Eng., 126, Stamford Street.  
 Sleigh, Robert, 3, Corporation Street.

## STAMFORD. Pop. 7,218.

Fields, Cotnam, 66, Scotgate.  
*Jones, Albert Sidney*, —L.D.S. Eng., 59, St. Martin's.  
 Jones, Frederick Hart.

## ST. ANDREWS. Pop. 7,621.

*Duncan, John Ainslie*, —L.D.S. Edin., 15, Murray Park.  
 Duncan, William, 15, Murray Park.  
*Johnston, Thomas Evans*, —L.D.S. Edin., 7, Howard Place.

## STANSTED. Pop. 2,208.

Bartlett, William, The Thatch.

## ST. ANNE'S-ON-SEA. Pop. 6,807.

*Hallsworth, Percy E.*, —L.D.S. Eng., Chasewood, Wood Street.  
 Lingford, John Charles,|| —L.D.S. Eng., 35, St. Andrew's Road South.  
 Patterson, P. M., —L.D.S. Eng., 3, Orchard Road and Rough Lee,  
 Wood Street.

## ST. ASAPH. Pop. 1,788.

Jones, William Griffith, —L.D.S. Edin., Lower Shop, High Street.

## ST. AUSTELL. Pop. 3,340.

*Howlett, Ernest Robert*, —L.D.S. Eng., Truro Road.  
 Rowe, William Francis, —L.D.S. Eng.

## ST. COLOMB. Pop. 6,843.

Griffith, Evan, The Square.

## ST. DAY. Pop. 2,500.

Corfield, Charles.

## STEYNING. Pop. 1,752.

Smart, Alfred.

ST. HELEN'S (LANCS.). Pop. 4,410.

Brewerton, Thomas, 49, Higher Park Street.  
 Cotton, John, 65, Church Street.  
 Cotton, John, Jun., 126, Prescott Road.  
 Durie, Robert Hall, 19, Hardshaw Street.  
 Fox, Thomas Augustine, 7, Liverpool Road.  
 Robertshaw, William Henry, 19, Hall Street.  
 Sherlock, Thomas, 16, Bridge Street.

STIRLING. Pop. 14,355.

*Common, Robert Keith*, —L.D.S. Edin., 74, Murray Place.  
*Marshall, David McFarlane*, 1, Melville Terrace.  
 Platt, Léon Jablonski, —L.D.S. Edin., 64, Murray Place.  
 Wilson, James Irvine, —L.D.S. Edin., 60, Murray Place.

ST. IVES (CORNWALL). Pop. 6,697.

Fooks, H. Johnston, —L.D.S. Eng., 1, Porthminster Terrace.  
 Jenkyn, Thomas, Market Place.  
*Reynolds, William*, —L.D.S. Eng., 1, Porthminster Terrace.

ST. IVES (HUNTS.). Pop. 3,500.

Ellis, Frederick, Bridge Street.

ST. JUST. Pop. 6,100.

Wearing, John, Fore Street.

ST. LEONARDS-ON-SEA. Pop. 9,647.

*Amoore, Duncan Wrightson*,\* —L.D.S.I., 8, Warrior Square.  
 Deacon, Henry James, 14, South Colonnade.  
*Dickinson, Morris de Courcy*,\* —L.D.S. Eng., 2, Verulam Place.  
 Graves, George, 95, London Road.  
 Hasselby, Edward Howdall, 1, Eversfield Place.  
 Hughes, Joseph, 4, Springfield Road.  
*Mansell, Edward Anson*, —L.D.S. Eng., 21, Warrior Square.  
*Simmonds, Ernest George*, —L.D.S. Eng., M.R.C.S., M.R.C.P. Eng.,  
 91, London Road.  
 Taylor, Arthur J., 29, King's Road.  
 Welch, Charles, 81, Southwater Road.  
 Williams, S. Herbert,\* —L.D.S. Eng., 8, Warrior Square.

ST. MARGARETS-ON-THAMES.

Taylor, Frederick St. Barbe, Sandycombe Road.

ST. NEOT'S. Pop. 4,500.

Sharp, James, Market Square.

STOCKPORT. Pop. 78,871.

Banks, William, 191, Bramhall Lane.  
 Brayne, John William Ward, Market Street, Newmills.  
 Burns, Percy Edwin, —L.D.S. Eng., 73, St. Peter's Gate.  
 Carrington, Charles Howard, —L.D.S. Glas., 21, Greek Street.  
 Cooper, Birkett Nelson, 7, Lowfield Road, Wellington Road South.

Dodge, William, Heaton Norris.

Edwards, Albert Frederick, 21, Hindley Street.

Frost, Edward, The Rocks, New Mills. [Moor Road.

*Gibbons, John Walton*, || —L.D.S. Eng., Mount Pleasant, Heaton

*Gibbons, Thomas*, || —L.D.S.I., 107, Wellington Road South.

Johnson, Thomas Jacob, 35, Middle Hillgate.

Knowles, Ralph Morten, 38, Great Portwood Street.

Lund, William Wallace, 36, St. Peter's Gate.

Moore, John, —L.D.S.I., 73, St. Peter's Gate.

Orton, William Billing, 67, St. Peter's Gate.

Royse, John Frederick, 178, Hall Street.

Taylor, Thomas Henry, 28, Shaw Heath.

Thorp, John, 66, Heaton Moor Road, Heaton Chapel.

#### STOCKTON-ON-TEES. Pop. 51,476.

*Cameron, John*, —L.D.S. Glas., West Ena Lodge, Yarm Lane.

*Dent, H. L.*, 1, Wood Street, Whitehall Place.

*Dent, James W.*, —L.D.S.I., 1, Wood Street.

*Knowles, Albert Eustace*, Russell House, 4, Russell Street.

*Knowles, George Frederick*, —L.D.S. Eng., Russell House.

Morrell, John George, —L.D.S. Eng., 7, High Street.

*Sibson, Arthur Bertram* —L.D.S., M.R.C.S. Eng., L.R.C.P. Lond.,  
Hardwick House.

Sibson, Daniel, —L.D.S.I., Hardwick House.

*Wood, Maurice Dale*,\* —L.D.S.I., Whitehall Place.

#### STOKE-ON-TRENT. Pop. 30,456.

Greville, Charles Brooke, c/o The Willows, Talke.

Lees, Samson Davenport, Snow Hill, Shelton.

#### STONE. Pop. 5,680.

Smith, Edgar Rayner, Shallowford.

#### STONEHOUSE. Pop. 2,207.

Leiper, Nathaniel R. H., —L.D.S. Glas., Loch Hall

Netten, Henry John Thomas, Manor Street.

#### STONY STRATFORD. Pop. 2,353.

Robinson, William Howe.

#### STOURBRIDGE. Pop. 16,302.

Baker, William, 124, High Street.

Selleck, William Robert, 136, High Street.

Swinnerton, Joseph Albert, Alma Villa, New Road.

#### STOURPORT. Pop. 4,529.

Weaver, Alfred, 5, York Street.

#### STOWMARKET. Pop. 4,162.

Gostling, George James, —L.D.S.I., Ipswich Street.

#### STRANRAER, N.B. Pop. 6,009.

McHarrie, John, 5, Albert Terrace.

STRATFORD-ON-AVON. Pop. 8,310.

Brown, William, —L.D.S. Glas., 27, Bridge Street.

*Cale-Matthews, G. F.*, —L.D.S. Eng., 2, Guild Street.

Powers, Thomas, 54, West Street.

STRATHAVEN. Pop. 3,500.

Hilston, Andrew C., Cross.

STREET. Pop. 4,000.

Forster, William Day.

STROOD. Pop. 12,514.

Harris, Harold Octavius Whitfield, —L.D.S. Eng.

Stevens, William Stewart, —L.D.S. Eng., 8, Weston Road.

STROUD (GLOS.). Pop. 9,188.

*Apperly, Ebenezer*, —L.D.S. Eng., Rowcroft.

*Apperly, Henry David*, —L.D.S. Eng., Field House.

*Colledge, Thomas Charles*, —L.D.S. Glas., 15, Lansdown.

Farrer, Robert Samuel,

[down.

*Pridham, William Collier*, —L.D.S. Eng., Brockley House, Lans-

Smith, David, 54, High Street.

SUDBURY (SUFFOLK).

Perry, William Kerby, —L.D.S. Eng., 12, Friars Street.

SUNBURY-ON-THAMES. Pop. 4,541.

Leman, John Lewis Pigot, Lansdowne Lodge, Green Street.

SUNDERLAND. Pop. 146,565.

Davis, Edward Skinner, 1A, Park Terrace, Bridge Street.

Dodd, William, 50, Roker Avenue, Monkwearmouth.

*Elliott, F. C.*, —L.D.S., North Bridge Street.

Fenwick, John Clarke, —L.D.S. Edin., 9, Park Terrace.

Fenwick, J. C., —L.D.S., Park Terrace.

Green, Eli Thomas Elkins, 3, Grange Terrace, Stockton Road.

Green, Richard James,§ —L.D.S. Eng., 3, Grange Terrace.

*Hutchison, Samuel*, 15, Park Terrace, Tonard Road.

Lishman, James,§ —L.D.S. Eng., 1, Queen's Gardens, Chester Road.

Priestly, Jonathan, 32, Frederick Street.

Purse, Alfred Dodds, 15, Salem Street.

*Ranken, John George*,§ —L.D.S. Eng., 14, Grange Crescent.

Robson, Robert, 2, Ellerslie Terrace, Monkwearmouth.

SURBITON. Pop. 15,019. [See London.]

*James, W. E.*, —L.D.S. Irel., 14, Claremont Road.

Kaye, Sydney James, —L.D.S., 14, Claremont Road. [biton Hill.

*Mellersh, William Francis*,\* —L.D.S. Eng., Steadman House, Sur-

*Phillips, Howard*, —L.D.S. Eng., 8, Claremont Road.

Phillips, John Henry, 8 Claremont Road.

Stewart, Cameron Robertson, —L.D.S. Eng., 21, Victoria Road.

## SUTTON (SURREY). Pop. 1,420.

Fisher, James, Lind Road. [Ravensdene, Brighton Road.  
*Holford, Walter Stanley*,\* —L.D.S., M.R.C.S. Eng., L.R.C.P. Lond.,  
*Ward, Richard Robert*,\* —L.D.S. Eng., Milverton, Brighton Road.  
 White, Eustace Beaumont Lathbury, —L.D.S. Eng., Elton, Brighton  
 Road.

## SUTTON CHENEY. Pop. 250.

Crabbe, William.

## SUTTON COLDFIELD. Pop. 14,204.

Gray, John, Mattock House.  
*Johnston, Thomas Saint*, —L.D.S.I., Annandale.

## SWANAGE. Pop. 3,384.

Hoole, Thomas George Walter, Hawthorne.

## SWANSEA. Pop. 103,720.

Andrew, Leyshon, Beaconsfield House, St. Helen's Road.  
*Forbes-Scott, Charles*, 3, Northampton Place.  
 Hopson, Christopher Alfred, 2, Dynevor Place.  
*Jenkin, Arthur Edward*, —L.D.S. Eng., 14, Northampton Place.  
*Jones, David Richard*, —L.D.S. Eng., 1, De la Beche Street.  
 Keall, Frederick Peard, 199, High Street.  
*Mitchell, Richard Davies*, —L.D.S. Eng., 10, De la Beche Street.  
 Oldham, Albert, 1, De la Beche Street.  
 Owen, Frederick de Roos, Oxford Street.  
 Pasmore, Charles Thomas, —L.D.S.I., 2, Northampton Villas,  
 St. Helen's Road. [Street.  
*Ritson, Thomas Nanson*, —L.D.S.I., Hearne Lodge, De la Beche  
*Thomas, Henry James*, —L.D.S.I., 8, Grove Place.  
 Tweeney, J. S. St. H., —L.D.S. Eng., Calvert House, Mansel Terrace.

## SWINDON. Pop. 44,900.

Davies, William Herbert, —L.D.S. Eng., Bath Road.  
 Verrier, Alfred Bult, —L.D.S.I., 38, Regent Circus.  
 Wrench, Thomas William, Badbury.

## SWINTON. Pop. 12,217.

Jones, John.

## TAIN ROSS-SHIRE). Pop. 2,076.

Fowler, Donald, High Street.

## TAMWORTH. Pop. 7,271.

Allkins, Thomas Boulton, 33, Market Street.  
 Perkin, Thomas, 11, Cole Hill.  
*Pickering, H. J.*, —L.D.S. Eng., 22, Lichfield Street.

## TAUNTON. Pop. 21,078.

Folland, William, 4, Alma Street.  
*Goodman, Edwin*, Yarde House, North Town.  
*Goodman, Thomas Dawson Edwin*, —L.D.S. Eng., Yarde House.

*Goodman, W. J.*, —L.D.S., Eng., Yarde House.  
*Kendrick, Alfred*,\* —L.D.S.I. and Eng., Bridge House.  
*Parsons, F.*, 28, Bridge Street.  
 Stringfellow, Allen Harrison, The Chestnuts, North Town.  
*Stringfellow, Ernest*, —L.D.S. Eng., 33, North Street.  
 Woollatt, Richard, 20, Fore Street.

TAVISTOCK. Pop. 4,728.

*Brown, Richard*, —L.D.S. Eng., 60, West Street.  
 Foot, William, Belmont, Watts Road.

TEDDINGTON. Pop. 10,100.

*Fox, Arthur Makinson*, —L.D.S. Eng., Brendon, Hampton Road.  
 Spurling, William Elliston, Hawthorn Stanley Road.

TEIGNMOUTH. Pop. 8,636.

*Butler, H. R. C.*,\* —L.D.S. Eng., 12, Orchard Gardens.  
*Cornelius, William Fryer*,\* —L.D.S. Eng., Orchard House.  
 Evans, Joseph James Ogilvie, 1, Orchard Gardens.  
 Griffith, William Henry, 25, Northumberland Place.

TEMPLEPATRICK. Pop. 250.

Ingham, Henry.

TENBURY. Pop. 1,730.

Morris, Ralph Clayton, Teme Street.

TENBY. Pop. 4,400.

Tuck, George Howard Henwood, 2, Kent House.  
 Tuck, Richard W. Henwood, —L.D.S. Eng., 2, Kent House.

TENTERDEN. Pop. 3,243.

*Tait, Thomas Andrew*, Ovenden House.

TEWKESBURY. Pop. 5,419.

Barlow, George Robert, 137, High Street.

THIRSK. Pop. 3,003.

Davis, Samuel David, 4, Sowerby Terrace.

THORNBURY. Pop. 2,549.

Palmer, James Spencer, High Street.

THORNHILL. Pop. 10,290.

Day, John, Savile Town.

THORNTON HEATH. Pop. 13,887.

Earee, Edwin Thomas.  
 Shaw, John H. Jones, —L.D.S. Eng., Warwick Villa.

THRANDESTONE. Pop. 500.

Ellott, Horace Herbert, —L.D.S. Glas.

THRAPSTON. Pop. 1,744.

Tinn, Edwin Alfred, 2, Market Road.



## THREE BRIDGES.

Warneford, Frederick, Highworth, Crawley Road.

## TIPTON. Pop. 30,543.

Roberts, James, Horsley Heath.

## TIVERTON. Pop. 10,302.

*Goddard, John Wood*, —L.D.S. Eng., 5, Peter Street.

Jenkins, William Henry, 36, Bampton Street.

Pedler, S. Edward, —L.D.S. Eng., Sampford Peverill.

Wood, Henry, Bridge Street.

## TODMORDEN. Pop. 25,419.

Maden, Mr., Burnley Road.

Stevenson, Herbert Brooks, Claremont, Burnley Road.

## TONBRIDGE. Pop. 10,120.

Gower, Alfred John, 9, High Street.

*Pedley, George Aston*, —L.D.S., M.R.C.S. Eng., L.R.C.P., L.S.A.  
Lond., High Street.

## TORQUAY. Pop. 33,625.

*Andrews, Joseph Richard*, 2, The Oaklands, Abbey Road.

Briggs, Frank Herbert, —L.D.S. Edin., 6, Park Crescent.

Chadwick, George William, Dalwood, Thurlow Road.

Cocks, John Walter, 2, Torhill Road.

Davies, David, 5, Elm Field Terrace, St. Mary Church.

Dykes, William Forbes, Winona, Marcombe Road.

Dykes, William Wallace, Endsleigh, Marcombe Road.

*Helyar, Albert*, —L.D.S. Eng., 66, Belgrave Road.

Hemsted, John Garnet, —L.D.S. Eng., Belgrave House.

*Hunt, Alfred*, 32, Tor Hill Road.

Johnson, Thomas, 24, Fleet Street.

Pearson, George, Fairholme, Cockington.

Rendall, Theodore Stancombe, —L.D.S. Edin., 76, Fleet Street.

*Strangways, Ludlow*, —L.D.S. Eng., Tor Grange.

*Tippett, John Collins*,\* 48, Belgrave Terrace.

*Turtle, John Glanville*, —L.D.S.I., Abbey Mount.

*Wheatley, Rupert*,\* —L.D.S., M.R.C.S. Eng., L.R.C.P. Lond., 4, Park Place.

Wood, Arthur Exley, —L.D.S. Eng., Amroth.

## TOTNES. Pop. 4,034.

*Hudson, Harry*, —L.D.S.I., The Plains.

## TOTTENHAM. Pop. 71,300. [See London.]

Browne, Lucien Edward, —L.D.S.I., Marsh House.

*Donstan, William*, —L.D.S.I., Pteris House, The Green.

## TOWYN. Pop. 3,744.

Roberts, Robert Jones.

TRALEE, KERRY. Pop. 9,300.

*White, Ernest Celsus*, —L.D.S.I., 28, Denny Street.

TREGARON. Pop. 1,509.

Jones, Thomas, Apothecaries' Hall.

TREHARRIS (GLAMORGANSHIRE).

Roberts, George William, Wenallt.

TROWBRIDGE (WILTS). Pop. 11,526.

Mundy, Alfred James, —L.D.S. Eng., 14, The Halve.

TRURO. Pop. 11,562.

Bullen, Harold Edward, —L.D.S. Glas., 81, Lemon Street.

Gibson, Zephaniah Job, —L.D.S. Eng., 20, Frances Street.

TUNBRIDGE WELLS. Pop. 33,388.

*Bacon, William Beadell*,\* —L.D.S.I., Mount Pleasant.

Batting, Thomas Gilbert, 16, The New Parade, Calverley Road.

*Bell, Frank*, —L.D.S.I., Hill House, Mount Pleasant.

*Castellote, Bonaventura Alfred*, —L.D.S. Eng., 27, Church Road.

Frost, Emmanuel Bowes Marshall, —L.D.S. Eng., Torrington Villa,  
Vale Royal. [Road.

*Lees, Charlie*, —L.D.S., M.R.C.S. Eng., L.R.C.P. Lond., 29, Church

*Maxwell, Leslie*, —L.D.S.I., D.M.D. Harv., 6, Calverley Terrace.

Owen, Percy N., —L.D.S. Glas., 6, Calverley Terrace.

Pearse, John, Hope House, Mount Pleasant Road.

Pedley, Joseph Kennerley, —L.D.S. Edin., 3, Mount Sion.

*Roberts, R.*, —L.D.S. Eng., 10, Church Road.

Slann, Cecil Bernard, 49, Upper Grosvenor Road.

*Tebbit, Ernest Reginald*, —L.D.S. Eng., 42, High Street.

*Tester, Alfred Horace*, —L.D.S. Eng., D.M.D. Harv., Harvard House,  
Church Road.

*Trollope, William Thomas*,\* —L.D.S.I., 42, High Street.

Wells, Frederick.

TUNSTALL. Pop. 19,492.

Oulton, William Peters, 7, Market Square.

Pigott, George Herbert.

TUXFORD. Pop. 1,283.

Reynolds, Edwin.

TYCROES.

Jones, Edward Gwilym, Hen Efail, Llanfaelog.

TYLDESLEY. Pop. 14,843.

Hamer, John, The Square.

Rhodes, Francis Joseph, —L.D.S. Edin.

Wallwork, Joseph, Elliott House.

TYNEMOUTH. Pop. 51,514.

Barber, Hugh Lloyd Hughes, Park View House.

## UFFCULME (DEVON). Pop. 1,704.

Goddard, Henry Brokenshere, L.D.S. Eng., Prospect Place.

## ULVERSTON. Pop. 10,064.

Grevile, Charles, 7, Princes Street.

*Stamper, Harold Askew*, 16, Queen Street.

Williams, Charles Walter, 22, Cavendish Street.

## UPTON ST. LEONARDS. Pop. 2,000.

Fox, Charles Herbert, —L.D.S. Edin., The Breezes.

## UTTOXETER. Pop. 5,133.

Parker, Alfred, High Street.

Tibbits, William, —L.D.S. Eng., North End House.

## UXBRIDGE. Pop. 8,585.

Simpson, Frederick George, 87, St. Andrews.

## WAINFLEET. Pop. 1,724.

Huggins, Robert Brown, High Street.

## WAKEFIELD. Pop. 41,544.

Barlow, Ernest Silas, 56, Teall Street.

Billinton, Arthur, 166, Westgate.

Biltcliffe, Walter, Ossett.

*Brown, Frank William* 1, Bond Terrace, St. John's.

*Hardy, Herbert William*, —L.D.S. Eng., 11, Southgate.

*Plumley, Arthur George Grant*, —L.D.S., M.R.C.S. Eng., M.B.,  
L.R.C.P. Lond., The Towers, 28, Bond Street.

## WALDRON. Pop. 1,697.

Barnard, John Charles, Hillside.

## WALLINGFORD. Pop. 2,808.

Carpenter, Frank Holly, —L.D.S. Eng., Gladwyn.

## WALLINGTON. Pop. 3,699.

Jones, John, Homedale, Clarence Road.

*Tyrrell, Albert John*, —L.D.S. Eng., Manor Road.

Warren-Williams, Herbert Edwin, —L.D.S. Glas., Woodcote Lodge.

## WALLSEND. Pop. 20,918.

Willcox, Samuel Joseph, —L.D.S. Eng., 16, Laburnum Avenue.

## WALSALL. Pop. 86,932.

Bayley, Joseph Thomas, Watling Street, Brownhills.

Grove, Emma, 11, Park Street.

*Grove, Harry Nicholas*, —L.D.S.I., 11, Park Street. [Bridge Street.

*Harrison, William Cecil*,\* —L.D.S. Eng., Metropolitan Chambers,

Marshall, H. Frank, —L.D.S. Eng., Highgate Road.

Morris, Joseph Owen. [141, Lichfield Street.  
*Shedden, Arnold Ward*, —L.D.S., M.R.C.S. Eng., L.R.C.P. Lond.,  
 Williams, James, —L.D.S. Eng., Belsize House, Bradford Street.  
 Williams, Sidney James, —L.D.S. Eng., Belsize House, Bradford St.

WALSINGHAM.

Abram, Frederick William.

WALTHAM CROSS. Pop. 6,540.

McFarlane, Alexander, Braemar, Eleanor Cross Road.

WALTHAMSTOW. Pop. 95,125.

Andrews, John William, 49, West Avenue Road.

Williams, Richard Ernest, 214, Hoe Street.

WALTON-ON-THAMES. Pop. 8,000.

*Power, Thomas Henry*,\* —L.D.S.I., Southwold.

WANSTEAD (ESSEX). Pop. 9,179.

Scott, Phillip, —L.D.S. Eng., The Mall.

WANTAGE. Pop. 3,766.

Candy, John William Gilbert, Widcombe House.

Clegg, Alfred Deighton, Newbury Street.

Keall, William Powell, Lea House, Newbury Street.

WARMINSTER. Pop. 5,547.

Cook, Frank, 33, Market Place.

WARRINGTON. Pop. 64,241.

Bamforth, Joseph, Winwick Street.

*Brown, Francis Arthur*, 8, Winmarleigh Street.

Calland, A. O., —L.D.S. Eng., Yew Tree House, New Church.

Eckersley, Moses, 115, Orford Lane.

Frankish, H., —L.D.S. Eng., 12 Bold Street.

Kenyon, Septimus, 8, Winwick Street.

Taylor, Hedley Hargreaves, —L.D.S. Eng., 22, Museum Street.

*Taylor, John*,|| —L.D.S.I., 22, Museum Street.

*Young, John Clarkson*, —L.D.S.I., 1, Palmyra Square.

Young, John Rymer, King Street.

WARWICK. Pop. 11,889.

Brown, Henry Anthony, —L.D.S. Glas., 9, Church Street.

Pratt, Henry, West Brow.

WATERFORD. Pop. 26,700.

Andrews, William Handy, —L.D.S.I., 19, Lombard Street.

Friel, Geoffrey, —L.D.S.I.

*Hayden, James Joseph*, —L.D.S.I., 39, Lady Lane.

WATERFOOT (LANCS).

Schofield, E., —L.D.S.I.

Sugden, Samuel.

## WATFORD. Pop. 29,023.

Chithey, Francis Charles, 12, Grosvenor Road.

Cottle, Alfred James, 97, St. Alban's Road.

*Fisk, William John*,\* —L.D.S. Edin., Street Lodge, Essex Road.

Holmes Smith, George, —L.D.S. Eng., 7, St. Alban's Road.

*Jeffery, Ernest*, —L.D.S. Eng., Whyte House, Clarendon Road.

## WEALDSTONE. Pop. 5,850.

Wheeler, Ernest Alfred, —L.D.S. Eng., Somerville.

## WELLINGBOROUGH. Pop. 18,412.

Brown, Newman Turland, Wollaston.

*Heath, R. H.*, —L.D.S. Eng., 62, Oxford Street.

*Hope, William Hodgskin*, 62, Oxford Street.

## WELLINGTON (SALOP). Pop. 6,273.

*Bradford, Sydney*, —L.D.S. Eng., Cleveland House, Park Street.

Hawthorne, H. W. J., —L.D.S. Eng., Holly Lodge.

Hunt, Edward Joshua, New Street.

## WELLINGTON (SOMERSET).

Farrant, Edward, —L.D.S. Eng., 52, High Street.

## WELLS. Pop. 4,849.

Townshend, Robert, 5, High Street.

## WEM (SHROPSHIRE). Pop. 2,157.

Lee, Philip.

## WEST BROMWICH. Pop. 65,172.

Bellman, Robert James, —L.D.S. Edin., 306, High Street.

Bettinson, William Thomas, 90, Beeches Road.

Haddock, Benjamin, Greets Green.

Heggs, William Francis.

*Horton, Arthur*, Paradise Street.

*Horton, A. W. N.*, —L.D.S. Glas., Oak Chambers, Paradise Street.

Tregea, William Henry, 27, High Street.

Tregea, William, —L.D.S. Glas., 27, High Street.

## WESTBURY (WILTS.). Pop. 3,300.

Tyrer, Thomas Frederick.

## WEST CORNFORTH.

Hunter, Harry, High Street.

## WEST HARTLEPOOL. Pop. 62,614.

Clarkson, Thomas, 41, Brunswick Street.

Hill, Joseph, 23, Stockton Road.

*Sibson, Percival Reginald*, —L.D.S. Eng., 20, Scarborough Street.

*Somerville, Woodiwis William*,§ 1, Tower Street.

Somerville-Woodiwis, Robert, —L.D.S. Glas., 1, Tower Street.

Turnbull, James Atkinson, —L.D.S. Eng., 12, Cambridge Terrace.

Watt, George Adam, —L.D.S. Glas., 2, Grange Road.

Woodiwis, R. Somerville, —L.D.S., 1, Tower Street.

WEST KIRBY. Pop. 5,419.

*Dinn, Charles Kilby*, —L.D.S. Edin., Heather Lea.

*Dinn, Walter Richard*, —L.D.S. Edin., Heather Lea.

*Matthews, William*,\* —L.D.S. Eng., 5, Grange Road.

*Steweni, George Henshall*, —L.D.S. Eng., Sunny Lawn, Banks Road.

WEST LINTON. Pop. 1,500.

Fraser, Alexander.

WEST MALLING. Pop. 2,500.

Oliver, Henry Charles Hewitt, West Malling.

WESTON-SUPER-MARE. Pop. 19,047.

Bambridge, Henry Banks, Osborne House, Ashcombe Road.

*Benson, Arthur Farish*, —L.D.S. Edin., 8, Albert Buildings, Knightstone.

Carr, James Bonwell, 37, High Street.

Hall, T. S. Muspratt, Cromwell House, Clarence Road, E.

Musgrave, Joseph John.

Taylor, Wallace Atkinson, —L.D.S. Eng., Standen House, Knightstone Road.

Wilde, Leonard Latham, —L.D.S. Edin., 1, Sydenham Terrace.

WETHERBY. Pop. 2,212.

Coulter, George, 1, Market Place.

WEYBRIDGE. Pop. 5,329.

*Flintan, Francis Robert*,\* —L.D.S. Eng., St. Michael's House, Princes Road.

*Sawday, George Curnock*, —L.D.S. Eng., Rydal Mount, Heath Road.

WEXFORD. Pop. 11,500.

Cooper, Robert Heath, 43, North Main Street.

WEYMOUTH. Pop. 19,831.

*Burt, Walter*, —L.D.S. Eng., 1, Frederick Place.

Dodd, Thomas Hunter, 40, Lennox Street.

*Laws, John*, —L.D.S.I., 2, Gloucester Row.

*Wallis, Samuel Henry*, —L.D.S.I., 1, Chesterfield Place.

WHALEY BRIDGE. Pop. 1,487.

Livesley, Thomas Henry, Market Street.

WHITBY. Pop. 11,748.

*Bridges, George Henry*, 4, Esplanade, West Cliff.

Bridges, Thomas Bartlett, 2, St. Hilda's Terrace.

Burrows, Ernest, 2, Belle Vue Terrace, West Cliff.

Tattersfield, William Henry, —L.D.S. Eng., 8, Church Square.

*Tinley, Tom Tinley*, —L.D.S. Edin., 2, Havelock Place.



## WHITCHURCH (HANTS). Pop. 2,500.

Coates, Frederick Arthur, —L.D.S. Eng., Hordley.

## WHITEHAVEN. Pop. 19,325.

Begg, John, —L.D.S. Edin., 76, Lowther Street.

Field, Harry Eugene, —L.D.S. Edin., 5, Scotch Street.

Little, Frederic, —L.D.S. Eng., 5, Scotch Street.

Marten, Alfred Ernest, —L.D.S. Eng., 76, Lowther Street.

Pettigrew, James Alexander, 11, Lowther Street.

## WHITLEY BAY. Pop. 7,705

Burt, John Aureus, Whitley Road.

## WHITSTABLE. Pop. 7,086.

Arrowsmith, George William Thomas.

## WHITTLESEA. Pop. 3,909.

Cavell, John.

## WICK, N.B. Pop. 2,774.

Macleod, James, —L.D.S. Eng., 8, Sinclair Terrace.

## WICKHAM. Pop. 1,162.

Snowdon, George Walker, High Street.

## WICKHAM MARKET. Pop. 1,417.

Gardner, Austen Walter.

## WICKLOW. Pop. 3,500.

Newbold, William Cooper.

## WIDNES. Pop. 30,000.

Priestnall, William, —L.D.S.I., 25, Waterloo Road.

## WIGAN. Pop. 60,770.

André, Percy Brannon.

Bromley, Thomas William, 32, Dicconson Street.

Clegg, William, —L.D.S. Eng., 61, Castle Hill Road, Hindley.

Fowlds, James John, 19, Wigan Lane.

Hartley, Benjamin Brown, 30, Standishgate.

Johnson, Thomas, 8, Market Place.

*Lamb, Frank Donald*, † —L.D.S. Eng., ‘Camelot,’ Mesnes Park.

Phillips, Jonathan, 58, Wallgate.

*Thom, Andrew*, —L.D.S. Edin., 20, Upper Dickonson Street.

## WILMSLOW. Pop. 7,952.

Mackenzie, Frederick, || —L.D.S. Eng., Beech Hurst.

## WINCHESTER. Pop. 19,070.

*Balding, L. M.*, \* —L.D.S. Eng., 21, Southgate Street.

Staple, Arthur Hubert, —L.D.S. Eng., 13, Kingsgate Street.

WINDSOR. Pop. 13,958.

Dainty, Arthur John, —L.D.S. Eng., Park House.

Dainty, John, —L.D.S.I., Park House.

Hobbs, Albert, 5, Victoria Street.

*Philpots, Montague*, —L.D.S. Eng., 14, High Street.

Westlake, Bernard, —L.D.S.I., 5, Clarence Villas.

Westlake, Bernard Beaumont, —L.D.S. Edin., 5, Clarence Villas.

WINSFORD. Pop. 10,382.

Ward, Henry Lea, 67, High Street.

WISBECH. Pop. 9,831.

Boor, William, 1, High Street.

*Coxon, Stephen Arthur Thomas*,\* —L.D.S.I., 4, York Row.

O'Hara, William James, Lower Hill Street.

Robertson, William Andrew, 3, Ely Place.

WISHAW. Pop. 13,110.

*Strain, John Kerr*, —L.D.S. Glas., 167, Main Street.

WITHAM. Pop. 3,454.

Green, Robert Poynter.

WOKING. Pop. 16,222.

*Barton, Lewis Fryer*, —L.D.S. Eng., The Retreat, Guildford Road.

Harridge, Alfred Fitch, —L.D.S.I., Kingsley.

Hope, Arthur Curling, —L.D.S. Eng., 12, The Broadway.

*Reid, Percy John*, —L.D.S. Eng., Lyndholme, Chertsey Road.

WOLVERHAMPTON. Pop. 94,179.

Brazier, William John, 40, Darlington Street.

Dally, Frederick, —L.D.S.I., 51, Waterloo Road South.

Elms, John Joseph, 120, Lord Street.

*Grove, H. M.*, —L.D.S.I., Stafford House, Queen Square.

Hare, Arthur Frederick.

Knight, Ernest Vincent, —L.D.S. Eng., 18, Waterloo Road South.

Lewis, Eugene Harry, 8, Waterloo Road South.

*Owen, William Gladstone*, —L.D.S., Eng., 26, Darlington Street.

Pearce, Augustus Frederick, 52, Waterloo Road South.

Tibbits, John Charles, Stanley Villas, 3, Leicester Street, New Hampton Road.

WOODBIDGE (SUFFOLK). Pop. 4,500.

Betts, Alick Stephen.

Betts, John.

Foster, Byatt William, Thoro'fare.

WOODFORD. Pop. 13,806.

Garman, Francis Wilberforce, —L.D.S. Eng., Archway House George Lane.

Newsome, Thomas Wood, 26, Chingford Lane, Woodford Green.  
Robertson, George, 3, Madeira Villas, Woodford Green.

WOOLWICH. Pop. 117,170. [See London.]

Briant, Wallace Watson, —L.D.S. Eng., 25, Powis Street.  
*Collins, James John*, 7, Thomas Street.  
*Pollard, R. C.*, —L.D.S.I., 51, Powis Street.

WORCESTER. Pop. 46,623.

*Griffiths, Hubert Malcolm*, —L.D.S. Eng., 105, High Street.  
Haynes, Charles Hammond, Hanley Castle.  
*Machin, Launcelot*, —L.D.S.I., 7, Thything.  
Morris, Frank, —L.D.S. Eng., 33, Foregate Street.  
*Morris, William Graves*, —L.D.S. Eng., 33, Foregate Street.  
Perkins, John J., Claremont, Park Avenue.  
*Sievers, Frederick William*, —L.D.S.I., 2, Foregate Street.  
Storm, Elliott Baxter, 53, Broad Street.  
*Surman, Robert John*, —L.D.S.I., 48, Foregate Street.

WORKINGTON. Pop. 26,141.

Askew, Hugh de Bosco, 11, Curwen Street.  
Carmichael, John Wesley, —L.D.S.I., 124, Harrington Road.  
Edmondson, Christopher Emmott, Dent Hall, Fisher Street.  
Edmondson, Thomas Asher, —L.D.S. Eng., 49, John Street.

WORKSOP. Pop. 16,112.

*Mills, Thomas Charles*, —L.D.S. Eng., 48, Bridge Street.  
*Mordaunt, T.*, —L.D.S. Eng., 15, Carlton Road.

WORTHING. Pop. 20,006.

*Cooksey, Edward Thomas*,\* —L.D.S. Eng., 26, Marine Parade.  
Cortis, Arthur Brownhill, 30, South Street.  
Douthwaite, H. S., —L.D.S. Eng., Holmbridge, Chesswood Road.  
Farnham, Henrie, 21, Teville Road.  
Farnham, William, Dalkeith.  
Frost, William, Washington House, Railway Approach.  
Gostling, Thomas Preston, c/o Dr. Gostling, Barnham, West Worthing.  
*Haines, Charles Frederick*, —L.D.S. Eng., 72, Marine Parade.  
Ness, Kenneth Carrington, —L.D.S. Eng., Lancaster House, Lansdowne Road.  
Sams, Virley Stevenson, —L.D.S. Eng., The Elms, West Worthing.  
Spurgeon, Ernest-le-Masurier, —L.D.S. Eng., New College, Shelley Road.

WREXHAM. Pop. 14,966.

*Chambers, T. Ruberg*,\* —L.D.S. Eng., Grosvenor Road.  
*Edwards, John Edward*,† —L.D.S. Edin., Acacia Villa, Regent Street.  
McLennan, A. P., 13, Queen Street.  
Robertshaw, Edwin, —L.D.S., 34, Regent Street.

WYMONDHAM. Pop. 4,721.

Maynard, George Christopher, Market Place.

YELVERTON. Pop. 500.

Balkwill, Francis Hancock,\* —L.D.S. Eng., Haaf Cottage.

YEOVIL. Pop. 9,838.

*Dickin, H. O.*, —L.D.S. Eng., Pen Villa.

*Helyar, Henry*, —L.D.S.I., Pitney Villa.

Hunt, William, —L.D.S. Eng., Pen Villa.

Hunt, William Alfred,\* Pen Villa.

Maggs, Frederick Richard, Casula.

YORK. Pop. 72,655.

Ashby, Edgar,\* —L.D.S., M.R.C.S. Eng., L.R.C.P. Lond., 58, Bootham.

Botwood, Charles Walker, —D.D.S., D.Sc., 74, Micklegate.

*Glaisby, Walter*\*, —L.D.S.I., 4, St. Leonard's.

*Greentree, Samuel Davey*, 82, Micklegate.

Hopton, Henry Stephen, 9, St. Leonard's.

*Hopton, W.*, —L.D.S.I., 7, Museum Street.

Lupton, Thomas, 15, Bootham.

Osborn, George Henry, 26, Coney Street.

Pinder, Edwin, 48, Stonegate.

*Rayner, Arthur George*, 75, Micklegate.

*Storey, William*, 27, Blake Street.

Winship, James, 36, Petergate.

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QUALIFIED AND REGISTERED PRACTITIONERS  
RESIDENT IN THE COLONIES AND ABROAD.

Aaronson, Ralph Raphael, Rue de Kasan, Maison No. 6, log. No. 30,  
St. Petersburg, Russia.

Ash, Edward Thomas, —L.D.S.I., 1176, Calle Piedras, Buenos Aires,  
Argentina.

Ash, Robert Slade, Villa Paola, Bould. du Nord, Monte Carlo, France.

*Atkinson, Frederick George*\*, —L.D.S. Eng., Casilla 534, Valparaiso,  
Chili.

Atkinson, John G.\*, —M.B., C.M. Edin., Casilla 534, Valparaiso, Chili.

Atkinson, Samuel\*, 228, Via Roma, Palazzo Cirella, Naples, Italy.

Atrutel, Jesays, George's Lane, District 17, House 3, Gibraltar.

Bache, James Hanley, 309, West 51st Street, New York, U.S.A.

*Badcock, Christopher Frampton*\*, —L.D.S. Eng., Egmore Lodge,  
Madras, India.

Baker, William, —L.D.S.I., 75, Boulevard Gambetta, Cahors, Lot,  
France.

- Ball, Samuel, Pine Cottage, Sandfield, Ontario, Canada.  
Barclay, Robert James, 41, Grave Street, Cape Town, Cape Colony.  
Barrett, George Garbois, 131, Collins Street East, Melbourne, Victoria.  
Batten, Charles Augustus Clifford, —L.D.S.I., Mussoorie, N.W.P., India.  
Baylis, George William, —L.D.S. Eng., Durban, Natal.  
Baylis, Leighton, —L.D.S. Eng., Pietermaritzburg, Natal.  
Beer, Francis Henry Wallace, —L.D.S. Edin., Woodbine Lodge, Mussoorie, India.  
Beer, James Henry Elias, —L.D.S.I., Mussoorie, N.W.P., India.  
Beers, William George, 107, Metcalf Street, Montreal, Canada.  
Belcher, Francis, 247, Gertrude Street, Fitzroy, Melbourne, Victoria.  
Benbow, Clements A., 157, Elizabeth Street, Hyde Park, Sydney, New South Wales.  
Bennett, William Alfred, 60, Armadale Road, Armadale, Melbourne, Victoria.  
Billsborrow, Charles, 145, Elizabeth Street, Hyde Park, Sydney, New South Wales.  
Bindemann, Ludwig Ferdinand Sheitlin, Worcester, Cape Colony.  
Binge, Frederick John, 252, Collins Street, Melbourne, Victoria.  
Bogue, Edward,\* —M.D., D.D.S., 63, West 48th Street, New York City, U.S.A.  
Bradbury, Samuel W., 41, Elizabeth St., Sydney, New South Wales.  
Britten, Edwin, Rue du Chateau 2, Chambéry, Savoie, France.  
Broadhurst, Arthur Hooper, Nickolsky, No. 6, St. Petersburg, Russia.  
Bromley, Herbert, Fort, Bombay, India.  
Brothers, Charles Matthew, Queenstown, Cape Colony.  
Brown, Alexander Ross, 52, Green St., Windsor, Melbourne, Victoria.  
Brown, James, —L.D.S.I., 82, Dutoitspan Rd., Kimberley, Cape Colony.  
Bulgin, Robert John, —L.D.S. Eng., Lucknow, N.W.P., India.  
Burt, Ernest, —L.D.S. Edin., 6, Rue Magador, Paris, France.  
Buss, James George, —L.D.S.I., Castel du Parc, Royat-les-Bains, France.  
Butler, George Edward, 56, St. George St., Toronto, Ontario, Canada.  
Caldwell, G. P., —L.D.S. Mich., Richmond, Natal.  
Campbell, Alexander, St. Vincent, Minnesota, U.S.A. [U.S.A.  
Campbell, Lorne John Malcolm, 3021, State Street, Chicago, Ill.  
Carr, John, —L.D.S. Edin, Ulster Chambers, Greenmarket Square, Cape Town, Cape Colony.  
Carr, William,\* —M.D., D.D.S., 35, West 46th Street, New York City, U.S.A.  
Cave, John Stanislaus, —L.D.S.I., Hunter Street, Newcastle, New South Wales.  
Chambers, Thomas Rubery, —L.D.S. Eng., General Hospital, Pretoria, Transvaal.  
*Chapman, H.*, —L.D.S. Eng., 3727, Spruce Street, Philadelphia, U.S.A.  
Chatfield, Alfred William, 190, Queen Street, Auckland, New Zealand.  
Chatterton, Guy,\* —L.D.S. Eng., Central Chambers, Oxford Street, East London, Cape Colony.

- Cheale, Alexander Charles, 91, Rue de Prony, Paris, France.
- Ciceri, Giovanni Battista, —L.D.S. Eng., 1, Via Carlo Cattano, Milan, Italy.
- Conard, Eli Mahlon, —D.D.S. Mich., Albany, Missouri, U.S.A.
- Conder, Harold, —L.D.S. Eng., Beaufort Street, Graham's Town, Cape Colony. [France.]
- Conrath, Frederick William, —L.D.S.I., 16, Place Vendôme, Paris,
- Cox, Edwin, —L.D.S. Eng., Kingsley House, Hobson Street, Auckland, New Zealand.
- Cox, Herbert,\* —D.D.S. Mich., 216, Queen Street, Auckland, New Zealand.
- Cox, Josiah Goodwin, Gladstone Road, Gisborne, New Zealand.
- Crank, Peter*, —L.D.S. Eng., D.M.D. Harv., 37, North Terrace, Adelaide, South Australia.
- Cumming, James, 5, Scott Street, South St. Kilda, Melbourne, Victoria.
- Davar, F. E.*, —L.D.S.I., 15, Meadow Street, Bombay, India.
- De Saxe, Selim, 161, Spring Street, Melbourne, Victoria.
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# DIARY OR CALENDAR OF THE MEETINGS

OF

## DENTAL AND MEDICAL SOCIETIES

*And the Principal Learned and Scientific Societies and Associations  
in the United Kingdom.*

(This Diary, compiled expressly for the present edition of the DENTAL ANNUAL AND DIRECTORY, is believed to be the most complete and comprehensive list available for Dental or Medical Practitioners or Students interested in the allied sciences; in the preparation of which the Editor acknowledges the assistance of Hon. Secretaries, and of Messrs. Taylor and Francis, the publishers of the *Philosophical Magazine*. Particulars of other kindred bodies which may have been omitted, especially those in large centres of the provinces, will be appreciated and duly tabulated.)

### JANUARY, 1906.

1. **Monday.**  
Victoria Institute, 4.30 p.m., Adelphi Terrace, London, W.C.
2. **Tuesday.**  
Manchester Odont. Soc., Grand Hotel, Aytoun Street, 7.30 p.m.
5. **Friday.**  
Quekett Micro. Club, 8 p.m., 20, Hanover Square, London, W.
8. **Monday.**  
Medical Soc., 8.30 p.m., 11, Chandos Street, London, W.
9. **Tuesday.**  
Royal Med. and Chir. Soc., 8.30 p.m., 20, Hanover Square, London, W.  
Inst. Civ. Engin., 8 p.m., Great George Street, London, S.W.  
Anthropological Institute, 8 p.m., 3, Hanover Square, London, W.
11. **Thursday.**  
Odont-Chir. Soc., Edinburgh.  
Inst. Elect. Engin., 8 p.m., 25, Great George Street, Westminster.
12. **Friday.**  
Clinical Soc., 8.30 p.m., 20, Hanover Square, London, W.
15. **Monday.**  
Royal Geograph. Soc., 8.30 p.m., Theatre, Burlington Gardens, London, W.  
Victoria Institute, 4.30 p.m., Adelphi Terrace, London, W.C.
16. **Tuesday.**  
Liverpool District Odont. Soc., 7.30 p.m., Demonstration Evening.  
This meeting will probably be held in the Dental Hospital.  
Leeds and District Section, North Midland Branch, B.D.A., Hotel Metropole, 7 p.m. Pathological Evening.  
Inst. Civ. Engin., 8 p.m., Great George Street, London, S.W.  
Pathological Soc., 8.30 p.m., 20, Hanover Square, London, W.  
Zoological Soc., 8.30 p.m., 3, Hanover Square, London, W.
17. **Wednesday.**  
Soc. Arts, 8 p.m., 18, John Street, Adelphi, London, W.C.  
Royal Micro. Soc., 8 p.m. (Anniversary), 20, Hanover Sq., London, W.

**18. Thursday.**

North of London Odont. Soc., Newcastle-on-Tyne, 6.15 p.m.  
 Zoological Soc., 4 p.m., 3, Hanover Square, London, W.  
 Linnean Soc., 8 p.m., Burlington House, London, W.  
 Chemical Soc., 8.30 p.m., Burlington House, London, W.  
 Royal Soc., 4.30 p.m., Burlington House, London, W.

**19. Friday.**

Royal Institution, 9 p.m., Albemarle Street, London, W.  
 Quekett Micro. Club, 8 p.m., 20, Hanover Square, London, W.

**20. Saturday.**

Southern Counties Branch, B.D.A., Brighton.

**22. Monday.**

Odont. Soc., 8 p.m., 20, Hanover Square, London, W.  
 Medical Soc., 8.30 p.m., 11, Chandos Street, London, W.

**23. Tuesday.**

Royal Med. and Chir. Soc., 8.30 p.m., 20, Hanover Square, London, W.  
 Inst. Civ. Engin., 8 p.m., Great George Street, London, S.W.  
 Anthropological Institute, 8.30 p.m. (Anniversary), 3, Hanover Square, London, W.

**24. Wednesday.**

Soc. Arts, 8 p.m., 18, John Street, Adelphi, London, W.C.

**25. Thursday.**

Inst. Elect. Engin., 8 p.m., Great George Street, London, S.W.  
 Royal Soc., 4.30 p.m., Burlington House, London, W.

**26. Friday.**

Clinical Soc., 8.30 p.m., 20, Hanover Square, London, W.  
 Physical Soc., 5 p.m., Royal Coll. Sci., S. Kensington, London, S.W.  
 Royal Institution, 9 p.m., Albemarle Street, London, W.  
 Royal Botan. Soc., 3.45 p.m., Regent's Park, London, N.W.

**29. Monday.**

Royal Geograph. Soc., 8.30 p.m., Theatre, Burlington Gardens, London, W.

**30. Tuesday.**

Sheffield and District Assoc. of Lic. in Dental Surgery, The University.  
 Inst. Civ. Engin., 8 p.m., Great George Street, London, S.W.

**31. Wednesday.**

Soc. Arts, 8 p.m., 18, John Street, Adelphi, London, W.C.

**FEBRUARY.****1. Thursday.**

Linnean Soc., 8 p.m., Burlington House, London, W.  
 Chemical Soc., 8.30 p.m., Burlington House, London, W.  
 Royal Soc., 4.30 p.m., Burlington House, London, W.

**2. Friday.**

Soc. of Anaesthetists, 20, Hanover Square, London, W.  
 Royal Institution, 9 p.m., Albemarle Street, London, W.  
 Quekett Micro. Club, 8 p.m., 20, Hanover Square, London, W.

**5. Monday.**

Medical Soc., 8.30 p.m., 11, Chandos Street, London, W.  
 Victoria Institute, 4.30 p.m., 8, Adelphi Terrace, London, W.C.

**6. Tuesday.**

Manchester Odont. Soc., 7.30 p.m., Grand Hotel, Aytoun Street.  
 Inst. Civ. Engin., 8 p.m., Great George Street, London, S.W.

Pathological Soc., 8.30 p.m., 20, Hanover Square, London, W.

Zoological Soc., 8.30 p.m., 3, Hanover Square, London, W.

**7. Wednesday.**

Soc. Arts, 8 p.m., 18, John Street, Adelphi, London, W.C.

**8. Thursday.**

Odont. Chir. Soc., Edinburgh.

Inst. Civ. Engin., 8 p.m., 25, Great George Street, London, S.W.

Royal Soc., 4.30 p.m., Burlington House, London, W.

**9. Friday.**

Clinical Soc., 8.30 p.m., 20, Hanover Square, London, W.

Physical Soc., 8 p.m. (Anniversary), Royal Coll. Sci., S. Kensington, London, S.W.

Royal Institution, 9 p.m., Albemarle Street, London, W.

**10. Saturday.**

Central Counties Branch, B.D.A., at Derby. Paper by Mr. A. E. Rowlett, L.D.S. Eng.

**12. Monday.**

Royal Geograph. Soc., 8.30 p.m., Theatre, Burlington Gardens, London, W.

Medical Soc., 8.30 p.m., 11, Chandos Street, London, W.

**13. Tuesday.**

Royal Micro. Soc., 8.30 p.m., 20, Hanover Square, London, W.

Inst. Civ. Engin., 8 p.m., Great George Street, London, S.W.

Pharmaceutical Soc., 8 p.m., 17, Bloomsbury Square, London, W.

Anthropological Institute, 8 p.m., 3, Hanover Square, London, W.

**14. Wednesday.**

Soc. Arts, 8 p.m., 18, John Street, Adelphi, London, W.C.

**15. Thursday.**

North of England Odont. Soc., 6.15 p.m., Newcastle-on-Tyne.

Linnæan Soc., 8 p.m., Burlington House, London, W.

Chemical Soc., 8.30 p.m., Burlington House, London, W.

Royal Soc., 4.30 p.m., Burlington House, London, W.

**16. Friday.**

Royal Institution, 9 p.m., Albemarle Street, London, W.

Quekett Micro. Club (Anniversary), 8 p.m., 20, Hanover Square, London, W.

**19. Monday.**

Musical Soc., 8.30 p.m., 11, Chandos Street, London, W.

Victoria Institute, 4.30 p.m., 8, Adelphi Terrace, London, W.

**20. Tuesday.**

Liverpool District Odont. Soc., Med. Club, 7.30 p.m. 'Superior Protrusion and Some Methods of Treatment,' W. Matthews, L.D.S. Eng.

Inst. Civ. Engin., 8 p.m., Great George Street, London, S.W.

Pathological Soc., 8.30 p.m., 20, Hanover Square, London, W.

Zoological Soc., 8.30 p.m., 3, Hanover Square, London, W.

**21. Wednesday.**

Soc. Arts., 8 p.m., 18, John Street, Adelphi, London, W.

Royal Micro. Soc., 8 p.m., 20, Hanover Square, London, W.

**22. Thursday.**

Zoological Soc., 4 p.m., 3, Hanover Square, London, W.

Inst. Elect. Engin., 8 p.m., 25, Great George Street, London, S.W.

Royal Soc., 4.30 p.m., Burlington House, London, W.

**23. Friday.**

Clinical Soc., 8.30 p.m., 20, Hanover Square, London, W.  
 Physical Soc., 5 p.m., Royal Coll. Sci., S. Kensington, London, S.W.  
 Royal Institution, 9 p.m., Albemarle Street, London, W.  
 Royal Botan. Soc., 3.45 p.m., Regent's Park, London, N.W.

**26. Monday.**

Odont. Soc., 8 p.m., 20, Hanover Square, London, W.  
 Royal Geograph. Soc., 8.30 p.m., Theatre, Burlington Gardens, London, W.  
 Medical Soc., 8.30 p.m., 11, Chandos Street, London, W.

**27. Tuesday.**

Sheffield and District Assoc. of Lic. in Dental Surgery, The University.  
 Royal Med. and Chir. Soc., 8.30 p.m., 20, Hanover Square, London, W.  
 Inst. Civ. Engin., 8 p.m., Great George Street, London, S.W.  
 Anthropological Institute, 8 p.m., 3, Hanover Square, London, W.

**28. Wednesday.**

Soc. Arts, 8 p.m., 18, John Street, Adelphi, London, W.C.

**MARCH.****1. Thursday.**

Royal Med. and Chir. Soc., 5 p.m. (Anniversary), 20, Hanover Square, London, W.  
 Linnaean Soc., 8 p.m., Burlington House, London, W.  
 Chemical Soc., 8.30 p.m., Burlington House, London, W.  
 Royal Soc., 4.30 p.m., Burlington House, London, W.

**2. Friday.**

Soc. of Anæsthetists, 20, Hanover Square, London, W.  
 Royal Institution, 9 p.m., Albemarle Street, London, W.  
 Quekett Micro. Club, 8 p.m., 20, Hanover Square, London, W.

**5. Monday.**

Medical Soc., 8.30 p.m., 81, Chandos Street, London, W.  
 Victoria Institute, 4.30 p.m., Adelphi Terrace, London, W.C.

**6. Tuesday.**

Manchester Odont. Soc., 7.30, Grand Hotel, Aytoun Street.  
 Inst. Civ. Engin., 8 p.m., Great George Street, London, S.W.  
 Pathological Soc., 8.30 p.m., 20, Hanover Square, London, S.W.  
 Zoological Soc., 8.30 p.m., 3, Hanover Square, London, S.W.

**7. Wednesday.**

Soc. Arts, 8 p.m., 18, John Street, Adelphi, London, W.C.

**8. Thursday.**

Odonto-Chir. Soc., Edinburgh.  
 Inst. Elect. Engin., 8 p.m., 25, Great George Street, London, S.W.  
 Royal Soc., 4.30 p.m., Burlington House, London, W.

**9. Friday.**

Clinical Soc., 8.30 p.m., 20, Hanover Square, London, W.  
 Physical Soc., 8 p.m., Royal Coll. Sci., S. Kensington, London, S.W.  
 Royal Institution, 9 p.m., Albemarle Street, London, W.

**12. Monday.**

Royal Geograph. Soc., 8.30 p.m., Theatre, Burlington Gardens, London, W.  
 Medical Soc., 8.30 p.m., 11, Chandos Street, London, W.

**13. Tuesday.**

Royal Med. and Chir. Soc., 8.30 p.m., 20, Hanover Sq., London, W.  
 Inst. Civ. Engin., 8 p.m., Great George Street, London, S.W.

- Pharmaceutical Soc., 8 p.m., 17, Bloomsbury Square, London.  
Anthropological Institute, 8 p.m., 3, Hanover Square, London, W.
14. **Wednesday.**  
Medical Soc., Annual Dinner, 7 p.m., 11, Chandos St., London, W.  
Soc. Arts, 8 p.m., 18, John Street, Adelphi, London, W.C.
15. **Thursday.**  
Linnæan Soc., 8 p.m., Burlington House, London, W.  
Chemical Soc., 8.30 p.m., Burlington House, London, W.  
Royal Soc., 4.30 p.m., Burlington House, London, W.
16. **Friday.**  
Royal Institution, 9 p.m., Albemarle Street, London, W.  
Quekett Micro. Club, 8 p.m., 20, Hanover Square, London, W.
17. **Saturday.**  
Representative Board Meeting, B.D.A., 19, Hanover Sq., London, W.
19. **Monday.**  
Royal Geograph. Soc., 8.30 p.m., Theatre, Burlington Gardens, London, W.  
Victoria Institute, 4.30 p.m., 8, Adelphi Terrace, London, W.C.
20. **Tuesday.**  
Liverpool District Odont. Soc., Med. Club, 64, Mount Pleasant.  
'Radiography,' D. Morgan, M.B., C.M. Edin. Microscopical  
Demonstration arranged by the Hon. Sec.  
Leeds and District Section, North Midland Branch, B.D.A., 7 p.m.,  
Hotel Metropole. Paper by J. H. Badcock.  
Inst. Civ. Engin., 8 p.m., Great George Street, London, S.W.  
Pathological Soc., 8.30 p.m., 20, Hanover Square, London, W.  
Zoological Soc., 8.30 p.m., 3, Hanover Square, London, W.
21. **Wednesday.**  
Soc. Arts, 8 p.m., 18, John Street, Adelphi, London, W.C.  
Royal Micro. Soc., 8 p.m., 20, Hanover Square, London, W.
22. **Thursday.**  
Central Counties Branch, B.D.A., at Birmingham (Regulation Meeting).  
Paper by Mr. G. H. Badcock.  
Zoological Soc., 4 p.m., 3, Hanover Square, London, W.  
Inst. Elect. Engin., 8 p.m., Great George Street, London, S.W.  
Royal Soc., 4.30 p.m., Burlington House, London, W.
23. **Friday.**  
Clinical Soc., 8.30 p.m., 20, Hanover Square, London, W.  
Physical Soc., 5 p.m., Royal Coll. Sci., S. Kensington, London, S.W.  
Royal Institution, 9 p.m., Albemarle Street, London, W.  
Royal Botan. Soc., 3.45 p.m., Regent's Park, London, N.W.
26. **Monday.**  
Odont. Soc., 8 p.m., 20, Hanover Square, London, W.  
Medical Society, 8.30 p.m., 11, Chandos Street, London, W.
27. **Tuesday.**  
Sheffield and District Assoc. of Lic. in Dental Surgery, The University.  
Royal Med. and Chir. Soc., 8.30 p.m., 20, Hanover Sq., London, W.  
Inst. Civ. Engin., 8 p.m., Great George Street, London, S.W.
28. **Wednesday.**  
Soc. Arts, 8 p.m., 18, John Street, Adelphi, London, W.
29. **Thursday.**  
Royal Soc., 4.30 p.m., Burlington House, London, W.

**30. Friday.**

Chemical Soc., 5.30 p.m. (Anniversary), Burlington House, London, W.  
Royal Institution, 9 p.m., Albemarle Street, London, W.

**APRIL.****3. Tuesday.**

Manchester Odont. Soc., Victoria Dent. Hosp., All Saints', Oxford St.  
Inst. Civ. Engin., 8 p.m., Great George Street, London, S.W.  
Pathological Soc., 8.30 p.m., 20, Hanover Square, London, W.

**4. Wednesday.**

Soc. Arts, 8 p.m., 18, John Street, Adelphi, London, W.

**5. Thursday.**

Linnæan Soc., 8 p.m., Burlington House, London, W.  
Chemical Soc., 8.30 p.m., Burlington House, London, W.  
Inst. Elect. Engin., 8 p.m., Great George Street, London, S.W.  
Royal Soc., 4.30 p.m., Burlington House, London, W.

**6. Friday.**

Soc. of Anæsthetists, 20, Hanover Square, London, W.  
Royal Institution, 6 p.m., Albemarle Street, London, W.  
Quekett Micro. Club, 8 p.m., 20, Hanover Square, London, W.

**7. Saturday.**

Wessex Branch, Annual General Meeting, Weymouth.

**9. Monday.**

Royal Geograph. Soc., 8.30 p.m., Theatre, Burlington Gardens, London, W.  
Medical Soc., 8.30 p.m., 11, Chandos Street, London, W.  
Victoria Institute, 4.30 p.m., 8, Adelphi Terrace, London, W.

**10. Tuesday.**

Royal Med. and Chir. Soc., 8.30 p.m., 20, Hanover Sq., London, W.  
Inst. Civ. Engin., 8 p.m., Great George Street, London, S.W.  
Pharmaceutical Soc., 8 p.m., 17, Bloomsbury Square, London, W.C.  
Zoological Soc., 8.30 p.m., 3, Hanover Square, London, W.

**18. Wednesday.**

Royal Micro. Soc., 8 p.m., 20, Hanover Square, London, W.

**19. Thursday.**

Zoological Soc., 4 p.m., 3, Hanover Square, London, W.

**23. Monday.**

'Dental Surgeon' Exhibition of Dental Trade and Trades interested,  
Cavendish Rooms, Mortimer Street, Regent Street, opened.  
Odont. Soc., 20, 8 p.m., Hanover Square, London, W.  
Victoria Institute, 4.30 p.m., 8, Adelphi Terrace, London, W.

**24. Tuesday.**

'Dental Surgeon' Exhibition.  
Liverpool District Odont. Soc., Annual General Meeting.  
Leeds and District Section, North Midland Branch, B.D.A., Hotel  
Metropole, p.m., Annual Meeting.  
Sheffield and District Assoc. of Lic. in Dental Surgery, The University.  
Royal Med. and Chir. Soc., 8.30 p.m., 20, Hanover Sq., London, W.  
Inst. Civ. Engin., 8 p.m. (Anniversary), Great George Street,  
London, S.W.  
Anthropological Institute, 8 p.m., 3, Hanover Square, London, W.

**25. Wednesday.**

'Dental Surgeon' Exhibition.  
Soc. Arts, 8 p.m., 18, John Street, Adelphi, London.



**26. Thursday.**

'Dental Surgeon' Exhibition.

Inst. Elect. Engin., 8 p.m., Great George Street, London, S.W.

**27. Friday.**

'Dental Surgeon' Exhibition.

Clinical Soc., 8.30 p.m., 20, Hanover Square, London, W.

Physical Soc., 5 p.m., Royal Coll. Sci., S. Kensington, London, W.

Royal Institution, 9 p.m., Albemarle Street, London, W.

Royal Botan. Soc., 3.45 p.m., Regent's Park, London, N.W.

**28. Saturday.**

'Dental Surgeon' Exhibition.

Southern Counties Branch, B.D.A., Croydon.

**30. Monday.**

Zoological Soc., 4 p.m. (Anniversary), 3, Hanover Sq., London, W.

**MAY.****1. Tuesday.**

Manchester Odont. Soc., 7.30 p.m., Grand Hotel, Aytoun Street.

Pathological Soc., 8.30 p.m., 20, Hanover Square, London, W.

Zoological Soc., 8.30 p.m., 3, Hanover Square, London, W.

Royal Institution, 5 p.m. (Anniversary), Albemarle St., London, W.

**2. Wednesday.**

Soc. Arts, 8 p.m., 18, John Street, Adelphi, London, W.

**3. Thursday.**

Linnæan Soc., 8 p.m., Burlington House, London, W.

Chemical Soc., 8.30 p.m., Burlington House, London, W.

Royal Soc., 4.30 p.m., Burlington House, London, W.

**4. Friday.**

Royal Institution, 9 p.m., Albemarle Street, London, W.

Quekett Micro. Club, 8 p.m., 20, Hanover Square, London, W.

**7. Monday.**

Royal Geograph. Soc., 8.30 p.m., Theatre, Burlington Gardens, London, W.

Victoria Institute, 4.30 p.m., 8, Adelphi Terrace, London, W.C.

**8. Tuesday.**

Royal Med. and Chir. Soc., 8.30 p.m., 20, Hanover Sq., London, W.

Anthropological Institute, 8 p.m., 3, Hanover Square, London, W.

**9. Wednesday.**

Soc. Arts, 8 p.m., 18, John Street, Adelphi, London, W.C.

**10. Thursday.**

Inst. Elect. Engin., 8 p.m., Great George Street, London, S.W.

Royal Soc., 4.30 p.m., Burlington House, London, W.

**11. Friday.**

Chemical Soc., 8.30 p.m., 20, Hanover Square, London, W.

Physical Soc., 8 p.m., Royal Coll. Sci., S. Kensington, London, S.W.

Royal Institution, 9 p.m., Albemarle Street, London, W.

**14. Monday.**

Medical Soc., 8 p.m. (General Meeting), 11, Chandos St., London, W.

**15. Tuesday.**

Pathological Soc., 8.30 p.m., 20, Hanover Square, London, W.

Zoological Soc., 8.30 p.m., 3, Hanover Square, London, W.

**16. Wednesday.**

Pharmaceutical Soc., 8 p.m. (Anniversary), 17, Bloomsbury Square, London.

Soc. Arts, 8 p.m., 18, John Street, Adelphi, London, W.C.  
 Royal Micro. Soc., 8 p.m., 20, Hanover Square, London, W.

**17. Thursday.**

Annual Meeting, B.D.A., London, Examination Hall, Victoria Embankment.

Zoological Soc., 4 p.m., 3, Hanover Square, London, W.

Chemical Soc., 8.30 p.m., Burlington House, London, W.

Royal Soc., 4.30 p.m., Burlington House, London, W.

Representative Board Meeting, B.D.A., 19, Hanover Sq., London, W.

**18. Friday.**

Annual Meeting, B.D.A., London, Examination Hall, Victoria Embankment.

Royal Institution, 9 p.m., Albemarle Street, London, W.

Quekett Micro. Club, 8 p.m., 20, Hanover Square, London, W.

**19. Saturday.**

Annual Meeting, B.D.A., London, Examination Hall, Victoria Embankment.

**21. Monday.**

Royal Geograph. Soc., 3 p.m. (Anniversary), Theatre, Burlington Gardens, London, W.

Medical Soc., 8.30 p.m. (Annual Oration), 11, Chandos Street, London, W.

Victoria Institute, 4.30 p.m., 8, Adelphi Terrace, London, W.C.

**22. Tuesday.**

Royal Med. and Chir. Soc., 8.30 p.m., 20, Hanover Sq., London, W.

Anthropological Institute, 8 p.m., 3, Hanover Square, London, W.

**23. Wednesday.**

Soc. Arts, 8 p.m., 18, John Street, Adelphi, London, W.C.

**24. Thursday.**

Linnæan Soc., 8 p.m. (Anniversary), Burlington House, London, W.

Inst. Elect. Engin., 8 p.m. (Anniversary), Great George Street, London, S.W.

**25. Friday.**

Clinical Soc., 8.30 p.m. (Anniversary), 20, Hanover Sq., London, W.

Physical Soc., 5 p.m., Royal Coll. Sci., S. Kensington, London, S.W.

Royal Institution, 9 p.m., Albemarle Street, London, W.

Royal Botan. Soc., 3.45 p.m., Regent's Park, London, N.W.

**28. Monday.**

Odont. Soc., 8 p.m., 20, Hanover Square, London, W.

**29. Tuesday.**

Sheffield and District Assoc. of Lic. in Dental Surgery, The University.

Pathological Soc., 8.30 p.m. (Anniversary), 20, Hanover Square, London, W.

Zoological Soc., 8.30 p.m., 3, Hanover Square, London, W.

**30. Wednesday.**

Soc. Arts, 8 p.m., 18, John Street, Adelphi, London, W.C.

**31. Thursday.**

Royal Soc., 4.30 p.m., Burlington House, London, W.

**JUNE.****1. Friday.**

Royal Institution, 9 p.m., Albemarle Street, London, W.

Quekett Micro. Club, 8 p.m., 20, Hanover Square, London, W.

7. **Thursday.**  
Linnæan Soc., 8 p.m., Burlington House, London, W.  
Chemical Soc., 8.30 p.m., Burlington House, London, W.
8. **Friday.**  
Physical Soc., 8 p.m., Royal Coll. Sci., S. Kensington, London, S.W.  
Royal Institution, 9 p.m., Albemarle Street, London, W.
11. **Monday.**  
Royal Geograph. Soc., 8.30 p.m., Theatre, Burlington Gardens, London, W.  
Victoria Institute, 4 p.m. (Anniversary), 8, Adelphi Terrace, London, W.C.
12. **Tuesday.**  
Royal Med. and Chir. Soc., 8.30 p.m., 20, Hanover Sq., London, W.  
Anthropological Institute, 8 p.m., 3, Hanover Square, London, W.
14. **Thursday.**  
Royal Soc., 4.30 p.m., Burlington House, London, W.
15. **Friday.**  
Quekett Micro. Club, 8 p.m., 20, Hanover Square, London, W.
18. **Monday.**  
Royal Geograph. Soc., 8.30 p.m., Theatre, Burlington Gardens, London, W.
19. **Tuesday.**  
Zoological Soc., 8.30 p.m., 3, Hanover Square, London, W.
20. **Wednesday.**  
Royal Micro. Soc., 8 p.m., 20, Hanover Square, London, W.
21. **Thursday.**  
Zoological Soc., 4 p.m., 3, Hanover Square, London, W.  
Linnæan Soc., 8 p.m., Burlington House, London, W.  
Chemical Soc., 8.30 p.m., Burlington House, London, W.  
Royal Soc., 4.30 p.m., Burlington House, London, W.
22. **Friday.**  
Physical Soc., 5 p.m., Royal Coll. Sci., S. Kensington, London, S.W.  
Royal Botan. Soc., 3.45 p.m., Regent's Park, London, N.W.
23. **Saturday.**  
Southern Counties Branch, Kingston-on-Thames.
25. **Monday.**  
Odont. Soc. Annual General Meeting, 20, Hanover Sq., London, W.
27. **Wednesday.**  
Soc. Arts, 4 p.m. (Anniversary), 18, John St., Adelphi, London, W.C.

## JULY.

7. **Saturday.**  
Representative Board Meeting, B.D.A., 19, Hanover Sq., London, W.
14. **Saturday.**  
Northern Counties Branch, B.D.A., Annual Meeting, Darlington.
27. **Friday.**  
Royal Botan. Soc., 3.45 p.m., Regent's Park, London, N.W.

## AUGUST.

8. **Wednesday.**  
International Dental Federation at Geneva, Switzerland.
9. **Thursday.**  
International Dental Federation at Geneva, Switzerland (*continued and concluded*).

## OCTOBER.

2. **Tuesday.**  
Manchester Odont. Soc., 7.30 p.m., Grand Hotel, Aytoun Street.
16. **Tuesday.**  
Liverpool and District Odont. Soc., 7.30 p.m., Med. Club, 64, Mount Pleasant.
18. **Thursday.**  
North of England Odont. Soc., 6.15 p.m., Newcastle-on-Tyne.
19. **Friday.**  
Soc. of Anæsthetists' Annual Dinner, 20, Hanover Sq., London, W.
20. **Saturday.**  
Southern Counties Branch Annual Meeting, Eastbourne.
27. **Saturday.**  
Representative Board Meeting, B.D.A., 19, Hanover Sq., London, W.
29. **Monday.**  
Odont. Soc., 8 p.m., 20, Hanover Square, London, W.
30. **Tuesday.**  
Sheffield and District Assoc. of Lic. in Dent. Surg., The University.

## NOVEMBER.

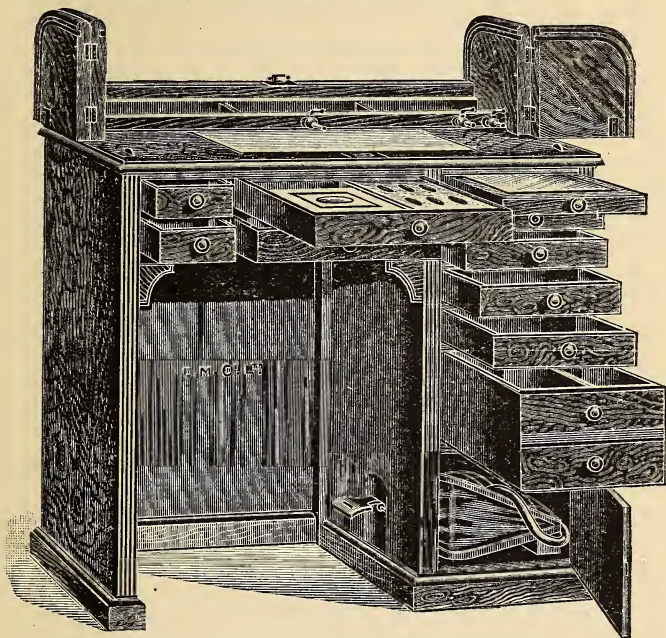
2. **Friday.**  
Soc. of Anæsthetists, 20, Hanover Square, London, W.
6. **Tuesday.**  
Manchester Odont. Soc., 7.30 p.m., Grand Hotel, Aytoun Street.
8. **Thursday.**  
Odont-Chir. Soc., Edinburgh.
15. **Thursday.**  
North of England Odont. Soc., 6.15 p.m., Newcastle-on-Tyne.
20. **Tuesday.**  
Liverpool and District Odont. Soc., 7.30 p.m., Med. Club, 64, Mount Pleasant.  
Leeds and District Section, North Midland Branch, B.D.A., 7 p.m., Hotel Metropole.
26. **Monday.**  
Odont. Soc., 8 p.m., 20, Hanover Square, London, W.
27. **Tuesday.**  
Sheffield and District Assoc. of Lic. in Dent. Surg., The University.

## DECEMBER.

4. **Tuesday.**  
Manchester Odont. Soc., Victoria Dental Hospital, All Saints, Oxford Street.
7. **Friday.**  
Soc. of Anæsthetists, 20, Hanover Square, London, W.
13. **Thursday.**  
Odont.-Chir. Soc., Edinburgh.
18. **Tuesday.**  
Leeds and District Section, North Midland Branch, B.D.A., 7 p.m., Hotel Metropole.
20. **Thursday.**  
North of England Odont. Soc., 6.15 p.m., Newcastle-on-Tyne.

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*Dental Mechanics*: HARRY ROSE, L.D.S. Eng.  
*Dental Metallurgy*: HUGH CANDY, B.A., B.Sc. Lond., F.I.C.  
*Dental Materia Medica*: C. W. GLASSINGTON, M.R.C.S., L.D.S. Edin.  
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*Dental Metallurgy*: J. WADE, D.Sc. Lond.  
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*Practical Dental Mechanics*: H. L. PILLIN, L.D.S.E.  
*Practical Dental Metallurgy*: M. F. HOFSON, L.D.S.E.  
*Special Surgery of the Mouth*: C. H. GOLDING BIRD, M.B., F.R.C.S.

### SUMMER SESSION.

*Operative Dental Surgery*: J. B. PARFITT, L.R.C.P., M.R.C.S., L.D.S.E.  
*Dental Materia Medica and Therapeutics*: J. H. BRYANT, M.D., F.R.C.P. Lond.  
*Dental Bacteriology*: J. W. H. EYRE, M.D. Durh., F.R.S.E.  
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[Inside back of cover.]

